

# JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

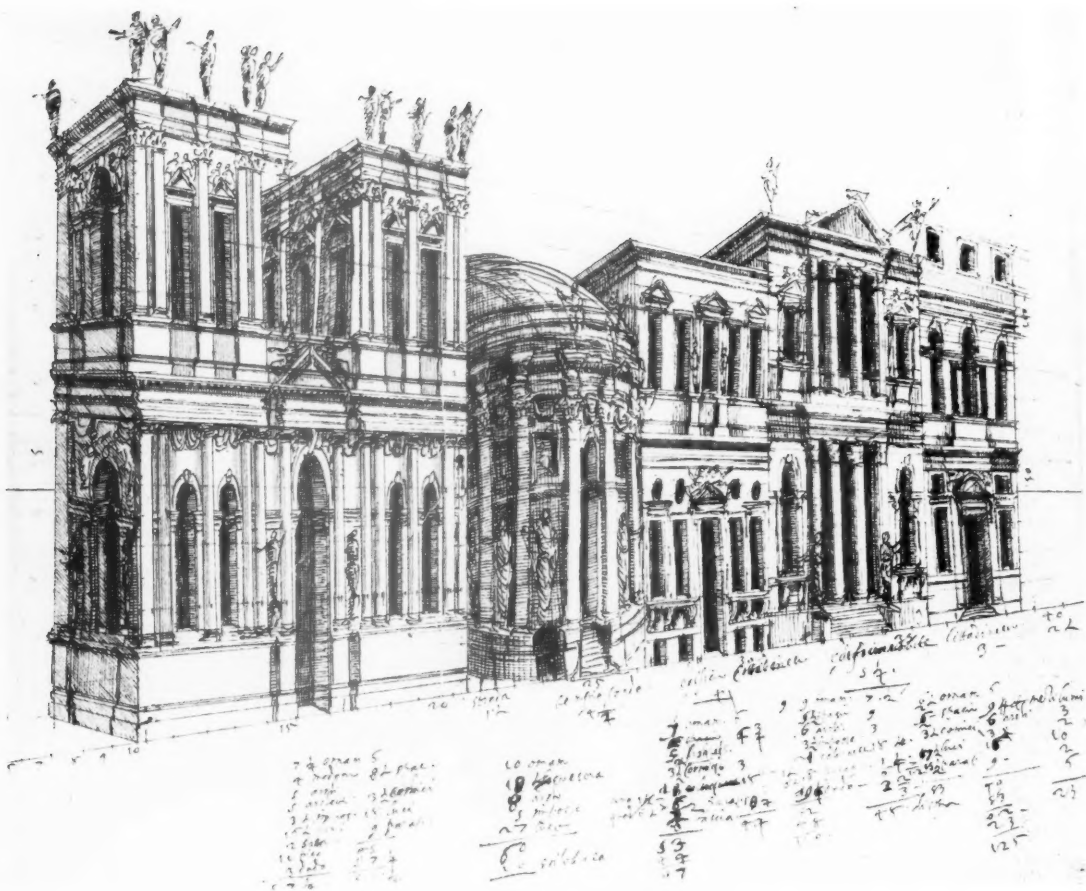
## THIRD SERIES

VOL. 42 No. 9

9 MARCH 1935

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DESIGN FOR STAGE SCENERY OF THE TEATRO OLIMPICO, VICENZA

By Scamozzi

From a drawing in the Duke of Devonshire's collection at Chatsworth

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# JOURNAL OF THE ROYAL INSTITUTE *of* BRITISH ARCHITECTS

VOL. 42. 3RD SERIES

9 MARCH 1935

No. 9

## Journal

We wish particularly to call attention to an important decision regarding sand-lime bricks, which has been made by the London County Council at the instigation of the R.I.B.A. Briefly, it had been ruled by the L.C.C. that sand-lime bricks were not "well burnt" according to a requirement of the London Building Act for bricks used in the Council's area, and that accordingly they could not be used except where a special waiver was obtained.

Since the sand-lime brick is a well established building material and is in fact the only brick subject to a British Standard Specification for quality, this ruling could only be regarded as a case of restriction of sound building practice by building regulation. Moreover, it was likely to do serious damage to an important and growing industry.

The R.I.B.A. Science Standing Committee accordingly drafted a letter, which the Council sent to the L.C.C., stating the facts and indicating a way out of the difficulty. The L.C.C. have adopted the Institute's recommendation and have reversed their decision subject to certain provisions. This is believed to be the first time that the L.C.C. has reversed such a ruling at the suggestion of an outside body. It indicates that the L.C.C. is both prepared to do its best to forward good building practice within the limits of its own Act, and also to consider seriously a proposal by the Institute as representing the technical knowledge of the architectural profession. The correspondence, with some comments on it, will be found on page 541. This is just one more example for those who ever doubt it of the value of the work which can be quietly, quickly, and successfully done by the R.I.B.A., and probably by no other body in the country.

Each generation, each year almost, seems to have its special building problem which demands and frequently deserves the lion's share of attention. The way in which certain problems bubble to the surface is not always due solely to their intrinsic importance, but to the operation of external forces which help to concentrate attention. Thus a number of years ago the decay of the roof of Westminster Hall turned everyone's mind more than ever before to the death watch beetle. Last year the sociological problems of housing called attention to a subject, bugs, which had hitherto received practically no public notice. On that occasion the R.I.B.A. in its JOURNAL was one of the very first bodies to discuss openly a subject which squeamishness had hitherto kept closely

confined to Government reports. Now another problem is in the forefront: Noise in buildings. There is great wisdom in relating science to popular enthusiasm, and in this particular problem, taking advantage of the popular interest which has been engendered by the traffic problem. Everyone suffers at work or rest from the disturbance of road noises, but few people and few architects among them know how they can be prevented from penetrating buildings. Elaborate scientific reports are necessary, but, unhappily, until architects are all endowed with scientific understanding, they will be denied the attention they deserve. Clearly it is up to architects to produce their own statements and the profession will on this account welcome the announcement made on a later page that the Science Standing Committee has appointed a sub-committee "to compile a list of recommendations to architects and builders, relative to the elimination of noise in buildings." The note to which we refer also calls on architects to help the sub-committee by reporting their own experiences. The most learned body of scientists in the world could not solve this problem, unless its relation to the actual experience of practitioners and public were real. We very earnestly plead with all members of the Institute, who have useful information to give, to respond to this invitation. If they are in doubt as to what is wanted, they can write to the Secretary of the Science Committee. It is by such work as this that the value of the R.I.B.A. can best be proved.

The recent Exhibition of International Architecture which was held during the centenary celebrations at the R.I.B.A. last December, is to start its provincial tour on 8 April, when Sir Josiah Stamp is to open the exhibition at the Manchester Art Gallery. Early in May the exhibition moves to the Walker Art Gallery, Liverpool, and after that it is hoped to arrange for the exhibition to be shown in Birmingham, Hull, and other centres. In addition to the 800 photographs which formed the original exhibition, there have been added some thirty photographs of the new R.I.B.A. building.

While the exhibition was on show in Portland Place nearly ten thousand people visited it—an average daily attendance of four hundred. Judging from the experience of the Transport Exhibition, which was held in 1931 and which made a provincial tour after the show in London, the provinces respond even more enthusiastically than the metropolis, so that before this exhibition

has finished its round it will perhaps have carried its message to ten or twelve times as many people as saw it at Portland Place. In 1931 almost 13,000 people visited the exhibition in Sunderland and over 7,000 in Hull. The 1929 Exhibition of Commercial Architecture was seen by over 9,000 people in Sunderland. It must be obvious to anyone who studies these figures and the widespread interest that is shown in the R.I.B.A. exhibitions that this work of the Institute is of almost incalculable value. To the country generally it is an educative influence that must result in a more genuine appreciation of architecture and of the services of the architectural profession.

The profession directly benefits from the publicity given to their work and to their Institute as the organiser of the exhibition. Members of the Institute's Allied Societies can do much to help the work of the Exhibition Committee by stimulating local interest in the exhibition when it reaches their district. They can, of course, do much to assure that all their friends pay visits, but, even more important, they can help to drive the effect of the exhibition more firmly home by doing the great amount that it is in their power to do to assure that local Press reports are intelligently critical. In recent months the Public Relations Committee have been giving detailed attention to the whole question of architecture and the local Press. If any member, or particularly any secretary of an Allied Society, wants advice on the best way he can help, he should write to the Secretary of the Public Relations Committee, who will give him the benefit of the considered experience which has been collected.

The Library exhibition which closed last Wednesday was a great success and thoroughly justified the trouble taken by the Literature Committee in embarking on such an ambitious show. About 2,500 people came to the exhibition in the 21 days on which it was open, an average of one hundred and twenty a day, excluding many of the people who just looked in on their way to committees and so on. As was to be expected, the public, and particularly the Press, showed itself chiefly interested in the unsuccessful competition drawings, which received far more than their proportionate share of the attention due to the exhibition as a whole. *Country Life*, *The Illustrated London News* and *The Listener* all gave a flatteringly generous amount of their space to photographs of the pictures. The article, particularly, by Mr. Christopher Hussey, in *Country Life*, was a compliment to the appeal of the exhibition which we recognise gratefully. As was recorded in the last number of the JOURNAL, the exhibition immediately stimulated a crop of gifts which still continues. They will all be recorded in due course in the pages of the JOURNAL.

It is proposed to hold the Thirteenth International Congress of Architects by invitation of the Italian Government in Rome in the latter part of September. Among the subjects which are suggested for discussion are the following: New materials and methods from the point of view of architectural design and construction: The

advantages to the public in the employment of architects: Who should design government and municipal buildings: Practical and technical knowledge required in the design and the planning of towns and public buildings: Standardisation in the design of community housing schemes, and Underground dwellings and communications. Membership of the Congress is open to people of all countries and not merely to official delegates. The full programme of congress meetings and excursions has not yet been completed, but application should be made as soon as possible by any who hope to be able to attend to the Hon. Secretary, C.P.I.A. (British Section) 11 Suffolk Street, London, S.W.1, who will keep applicants notified of what arrangements are made.

In the Allied Societies column we record a meeting of unusual interest which was held by the Norfolk and Norwich Association of Architects to give Mr. C. H. James and Mr. S. R. Pierce, the architects of the new Norwich municipal buildings, the chance of expounding their design to the people of Norwich. We have been told that this is the first time that the architects of a great municipal scheme have ever met the people—their clients—at a friendly public meeting to discuss their work and explain its technical and artistic merits. If it has not been done before, the Norwich meeting has set a precedent which certainly deserves to be followed. Everything that can help to stimulate civic consciousness is good, and naturally, from the architects' point of view, everything that can help to direct civic consciousness to an understanding of good architecture is particularly desirable. Here is more work for energetic allied society secretaries. There are obvious reasons why the architects of the buildings cannot themselves organise such meetings and there are many good reasons why the promoters of the scheme cannot do it; the latter, as often as not, are the people who need the instruction; it can only be done by generously disposed architectural societies, whose members should themselves benefit as much as anyone from the increased understanding of architecture that must result.

A social evening has been arranged by the R.I.B.A. Social Committee for Monday, 29 April, when the Dramatic Society will give a performance, the detailed programme of which has not yet been announced. It is probable that three one-act plays will be given. There are several vacancies in the casts, particularly in the male parts, and any members of the Institute interested in dramatic work are asked to communicate with Miss Gertrude Leverkus, the hon. secretary of the R.I.B.A. Dramatic Society, c/o R.I.B.A.

The next and third Informal General Meeting will be held on Wednesday, 3 April, at 6 p.m., with refreshments at 5.30 p.m. It will be a debate on the motion "That Architects should seek representation in Local and National Government." The speakers have not yet been decided upon.





VINCENZO SCAMOZZI

From the title page of *L'Idea della Architettura*, 1615

## DRAWINGS BY VINCENZO SCAMOZZI\*

BY WILLIAM GRANT KEITH

IN the course of a study of the Burlington-Devonshire Collection published in the JOURNAL some years ago, in which it was shown that the original collector of a large proportion of the Italian drawings, forming such a valuable part of it, was not Lord Burlington, as had hitherto been thought, but Inigo Jones, it was mentioned that although Palladio was most largely represented there were many drawings by other Renaissance masters in the collection.<sup>1</sup> Among the latter drawings reference was made to some attributed to Palladio's fellow-townsmen and successor, Vincenzo Scamozzi. Drawings by Scamozzi are rare. In the Uffizi Gallery, which contains the richest collection in Italy of architectural drawings of the Renaissance period there are some eight sheets by him.<sup>2</sup> Others of his are in the Museo Civico of Vicenza. Four drawings in the Burlington-Devonshire Collection are attributed to him.

In the earlier paper referred to above mention was

made of another drawing by Scamozzi in the sister collection at Chatsworth. This is a design for one of the street façades forming part of the built-up permanent scenery of the stage of the Teatro Olimpico at Vicenza, which was added as a completing feature by Scamozzi in 1584, four years after Palladio's death. Scamozzi's drawing is reproduced in the frontispiece, Fig. 1 (Chatsworth Drawings, vol. ix, pl. 71). Four more of his designs for the scenery of the Olimpico, companion drawings to the one shown here, are now in the Uffizi Gallery. The present drawing it may be said is very similar in design to sheet No. 197 of the Uffizi collection.

Considering the rarity of Scamozzi's drawings it is, therefore, of unusual interest to find that there are five further sheets of drawings by him at Chatsworth not hitherto identified. They are mounted in a volume containing drawings of very miscellaneous character, having the cover title "Public Ornaments

<sup>1</sup> R.I.B.A. JOURNAL, vol. xxxiii, 3 Ser., No. 4, 1926.

<sup>2</sup> Twenty-three sheets of drawings are attributed to Scamozzi in Ferri's *Indice . . . dei disegni di Architettura . . . nella R. Galleria degli Uffizi* (Rome, 1885), but a recent examination of the drawings shows that many of these earlier ascriptions are unacceptable.

\*I have to thank the Duke of Devonshire, the owner of the copyright, for permission to publish the original Scamozzi drawings at Chatsworth, and also the Authorities of Worcester College, for permission to use the drawing by John Webb on page 535.

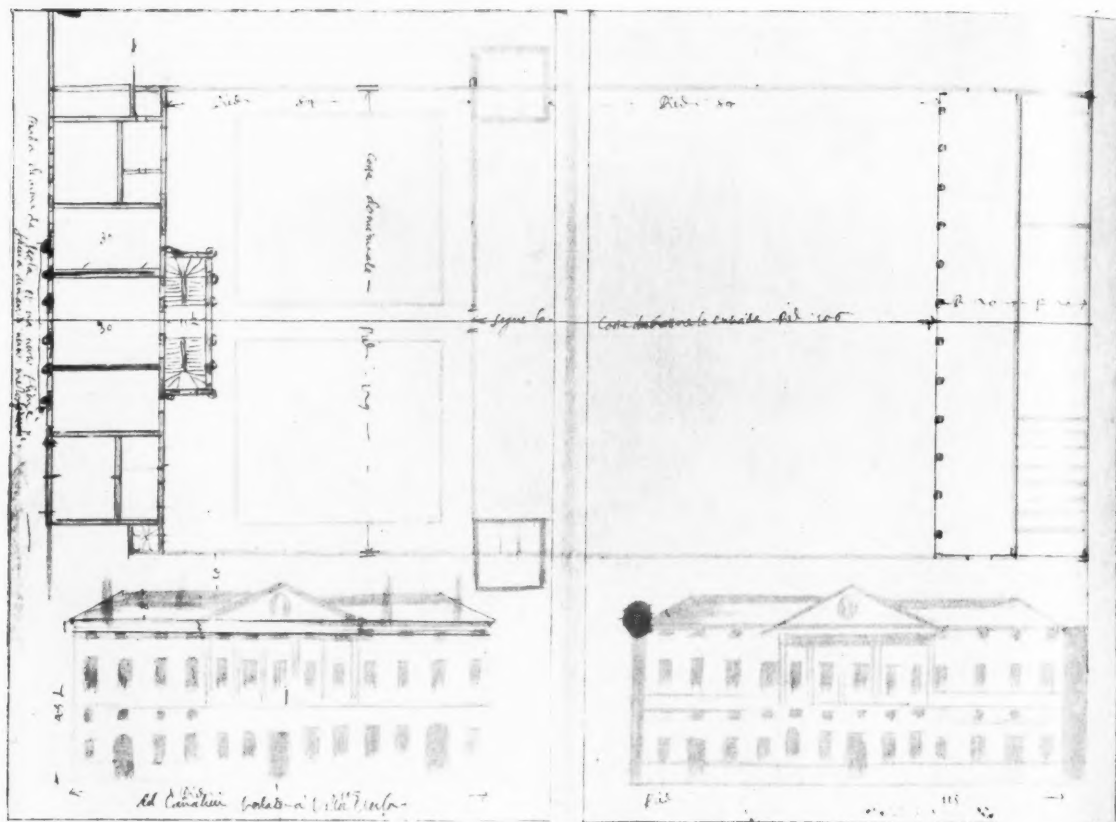


FIG. 2.—VILLA VERLATO AT VILLA VERLA  
Plan and Elevations drawn by Scamozzi

—Arches and Bridges" (Drawings, vol. E.27). This volume was briefly described in some notes on the Burlington-Devonshire collection (which had just been removed from the Villa at Chiswick) contributed to the JOURNAL in 1892 by J. D. Crace, and the then unrecognised drawings by Scamozzi were mentioned as "designs for palaces in Vicenza and neighbourhood." Actually they comprise designs for the following buildings:—

- Villa Verlatto at Villa Verla (Vicentino).
- Villa Pisani at Lonigo (Vicentino).
- Palazzo Trissino al Duomo, Vicenza.
- Church and Convent of the Teatini (now San Gaetano), Padua.
- Villa Ferramosca at Barbano (Vicentino).
- Casa Priuli at Carrara (Padua).

Of the foregoing the first three are described and illustrated in the third book of Scamozzi's elaborate architectural treatise, *Dell' Idea dell' Architettura Universale*, &c., published at Venice in 1615. This work was planned in ten books, but was issued in an incomplete form, for the original edition lacks the fourth, fifth, ninth and tenth books, and these remained unpublished up to the time of Scamozzi's death. The fourth and fifth books were to have included more of the author's own designs.

Scamozzi died in 1616, and later in the century his MSS. with the wood blocks and copperplates for the illustrations of the complete work seem to have been sold in piecemeal fashion by his heirs. The history of the dispersal of this material with its successive changes of ownership is difficult to elucidate, part of

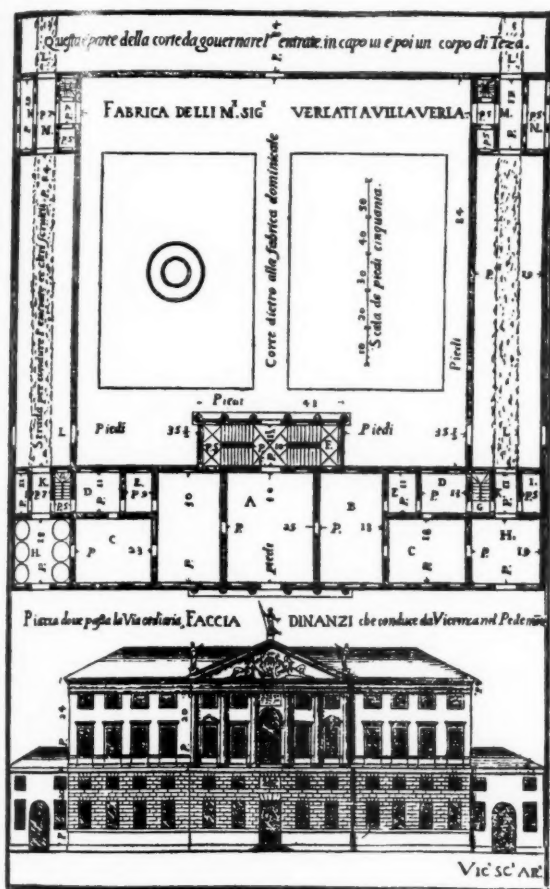


FIG. 3.—VILLA VERLATO

Plan and Elevation from Scamozzi's *Idea della Architettura*, p. 287

it being taken to Amsterdam and part to Paris.<sup>3</sup> As a matter of bibliographical interest it is notable that the original wood blocks were still being printed from a century after Scamozzi's death, for they were used to illustrate a Dutch edition of 1713.<sup>4</sup>

Scamozzi's treatise took its place as a standard textbook on architecture and, in particular, the sixth book, dealing with the orders, was widely

accepted as an authority. Outside Italy his writings found early favour in Holland, for already in 1640 a Dutch translation of the sixth book had appeared at Amsterdam. This was the work of the engraver Cornelis Danckerts.

So good was the reception given to this first translation of Scamozzi's "orders" that Dancker Danckerts, who had succeeded to his father's business as an art publisher, prepared a corrected edition. And he went further than that. Having been requested, he tells us, to publish the complete work of Scamozzi, during the course of a visit to Venice in 1655 he "most industriously sought out" the original material for the rest of the treatise which he eventually found in the hands of Scamozzi's heirs and, purchasing what he could, brought it back with him to Holland.<sup>5</sup>

Danckerts appears to have secured all the wood-blocks for the illustrations of the work, including those designed for two out of the four still unpublished books, as well as some of Scamozzi's MSS. On his return home he prepared a much abridged edition of the treatise, translated into Dutch, which he issued at Amsterdam in 1661, although one of the printed titles in the copy in the Institute Library actually bears the earlier date 1658.

In an explanatory general title Danckerts describes his edition as the architectural works of Scamozzi "collected in eight books, of which the third and sixth [the 'orders'] appear with their text and plates as being the most important relating to architecture." As for the remainder he thought it sufficient merely to give the plates with short marginal descriptions. In this section were included the plates of the fourth and fifth books which he was thus the first to put in print. The special interest of Danckerts's edition of Scamozzi in relation to the present study of his work lies in the fact that three of the buildings represented among his drawings at Chatsworth are illustrated in Books 4 and 5. These are the church and convent at Padua, the Villa Ferramosca and the Casa Priuli at Carrara. And though Danckerts says in his title to these plates that "the descriptions in their native tongue have been lost," unless he had access to some of Scamozzi's own notes it is difficult to account for his precise dating of the buildings illustrated.

Mariette had the "primo sbizzo" of the *Architettura*, although "mancante . . . ed imperfetto." (*Vite dei più celebri Architetti*, 1778.)

<sup>4</sup> *Œuvres d'Architecture de Vincent Scamozzi*, &c. A Leide, chez Pierre Van Der Aa, 1713. fo.

<sup>5</sup> *Vincent Scamozzi Bouwkonstige Wercken, Begrepen in 8 Boeken*; (&c.) T<sup>e</sup> Amsterdam, bij Dancker Danckerts, inde Calverstraat inde Danckbaerheijt, Anno 1661. fo. (See general preface as well as the dedicatory epistle to the 6th book.)

<sup>3</sup> The original copperplates for the 6th Book eventually came into the hands of the Paris publisher Coignard, who used them to illustrate D'Aviler's translation of Scamozzi's "Orders" issued in 1685.

In writing his life of Scamozzi (nearly a century later), Temanza acknowledges his indebtedness to the well-known Paris collector P. J. Mariette who gave him a great deal of information from the MSS. of Scamozzi then in his possession. He affirms, indeed, that

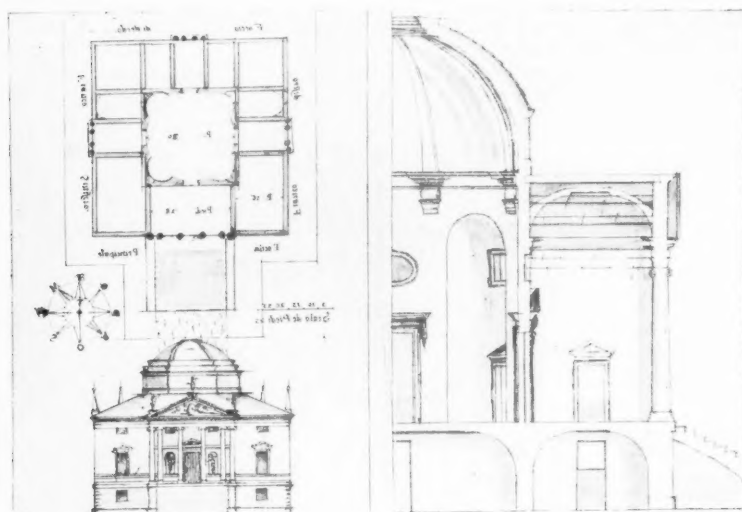
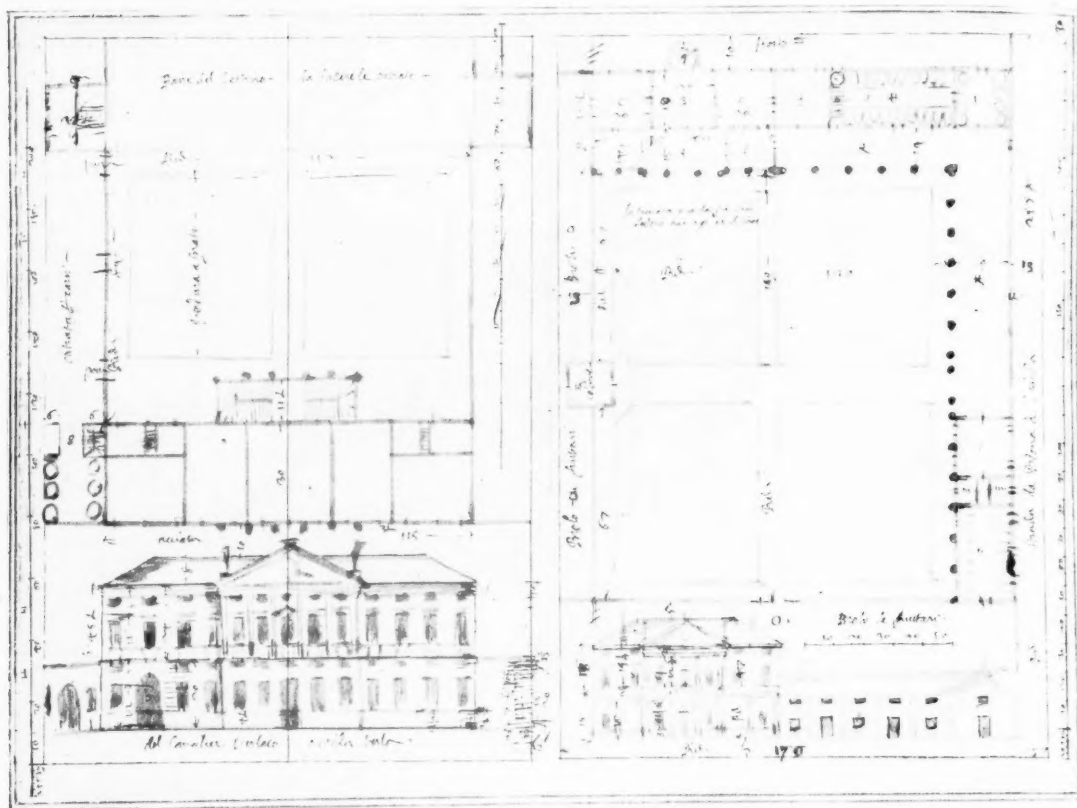


FIG. 4.—Above:  
(a) VILLA VERLATO  
Plan and Elevation—cf. Fig. 2  
(b) VILLA FERRAMOSCA  
Plan and Elevation

FIG. 5.—To left:  
VILLA PISANI, LONIGO  
(a) Plan and Elevation  
(b) Half-section to larger scale

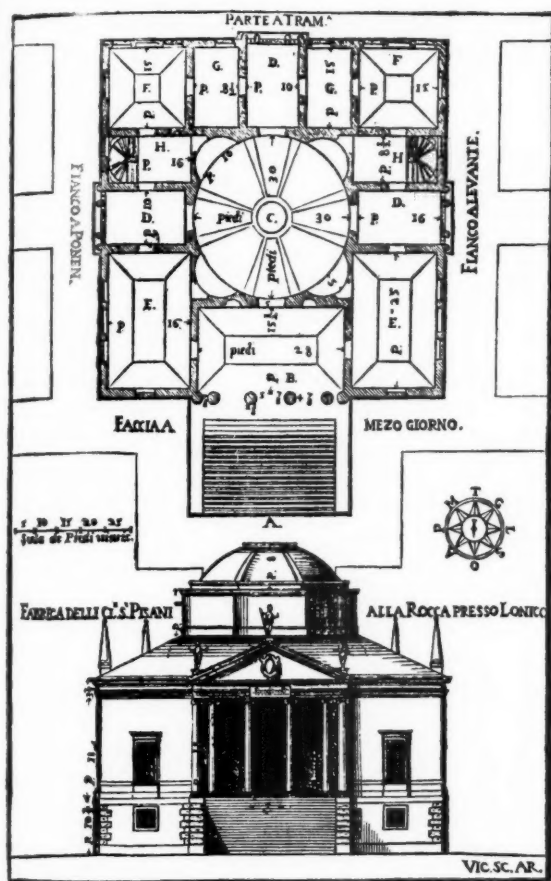


FIG. 6.—VILLA PISANI, LONGIGO

From *Idea della Architettura*, p. 273

With regard to the style of the drawings by Scamozzi, here reproduced for the first time, excepting the sheets of studies for the plan of the Casa Priuli (Fig. 11) they are all drawn within a ruled line surround measuring approximately  $10\frac{3}{4}$  inches by  $7\frac{1}{8}$  inches. Now this is almost exactly the size of the plates of the *Architettura*. At first sight, in fact, it would seem as though Scamozzi had prepared them for the use of the engraver who cut his blocks. One of the sheets it will be seen was evidently drawn for this purpose. This is the plan and elevation of the Villa Pisani (Fig. 5) whereon the lettering is written in reverse. The manner of presenting the designs in the

drawings was followed in engraving the plates. On a closer inspection of the drawings, however, it will be found that the designs vary in detail from the published versions. There are, for example, two plans of the Villa Verlatto (Figs. 2 and 4), neither of which exactly agrees with the published plate. And in this particular instance the plans—rapidly-made sketches—are drawn with too little detail and too few figured measurements to serve the engraver. The two sketch elevations which accompany these plans are even more at variance with the plates.

The Villa Verlatto was one of Scamozzi's earliest works, having been built, he tell us, in 1574. He was then aged 22 and in introducing the design says in his grandiloquent manner: "Il magnifico signor Conte Leonardo Verlatto . . . si diede à nobilitare una sua casa à Villa Verla . . . secondo i nostri giovenili disegni."

The plan, with the front and back elevations of the house, and its double enclosed garden courts, appear on folio 66 of the Chatsworth volume (Fig. 2). The second enclosure extends to the containing wall of a stable court forming its northern boundary. Although the house plan agrees in general with the plate in the *Architettura* (Fig. 3), the arrangement of the secondary stairs in the angles of the wings serving the mezzanine floor is different, the garden façade of the house being extended to include them where in the finished design they are placed in the two-storied extensions flanking the main block. Similarly the small garden buildings at the rear angles of the first court are differently placed, being sited outside the back line of the court and not within it.

There is another plan and elevation of the villa on folio 70(a) (Fig. 4a) where the drawings are mounted with the design for the Villa Ferramosca at Barbano (70b). This plan, though only a rough, unfinished sketch, approximates more closely to the published design. But here, too, it will be seen that there are various indications that if Scamozzi had settled the general lay-out, the details of the plan were in course of development and revision, showing that the drawings were not prepared as material for the engraver but were original studies for his design. In this elevation an additional entrance door is shown in the left wing of the front, while in the other drawing there is one in either wing.

The Villa Pisani at Longigo, another early work of Scamozzi's, built in 1576, is shown in Fig. 5, his drawings comprising a plan and front elevation (a) with a half-longitudinal section to a larger scale (b). The plan agrees with the plate, Fig. 6 (*Architettura*,



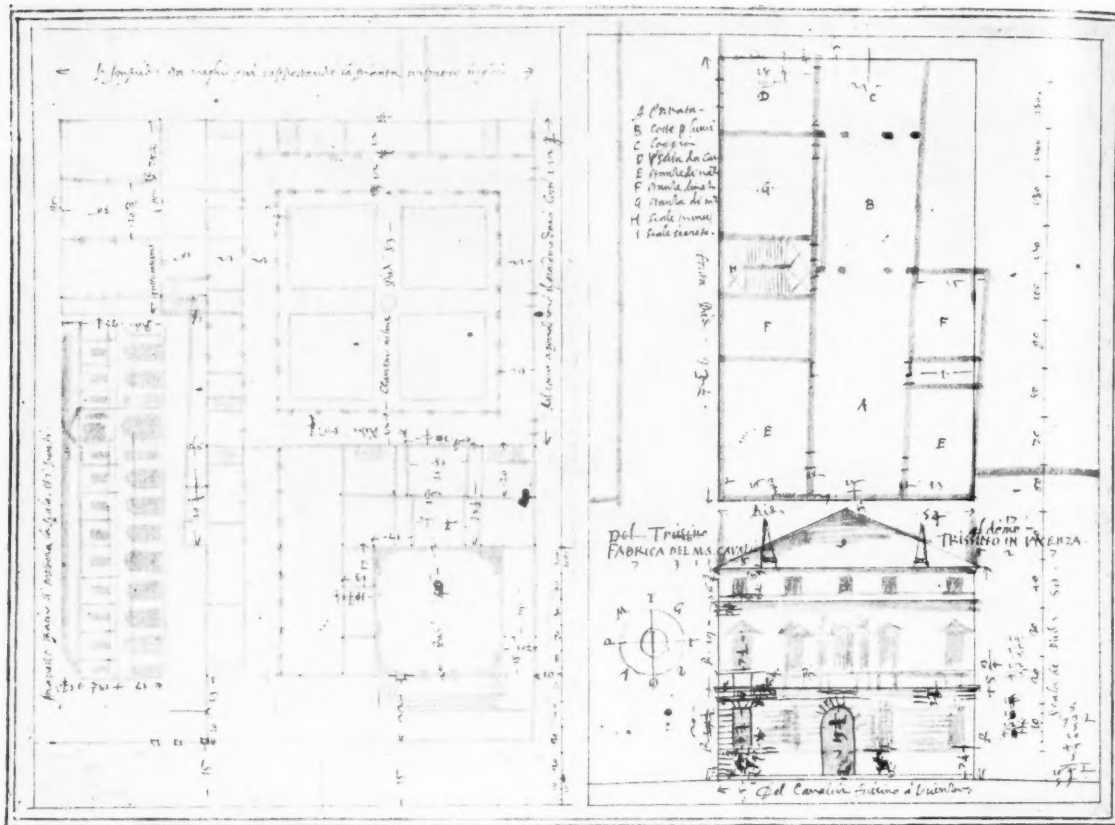


FIG. 7 (a) CHURCH AND CONVENT OF THE TEATINI, PADUA. Plan and part elevation  
(b) PALAZZO TRISSINO AL DUOMO, VICENZA

p. 273), as does the elevation except for a difference in the detail of the cupola. In the drawing here the drum recedes in two steps where in the plate there is but one. In the half-section (Fig. 5b) which was not published by Scamozzi, it will be seen that the dome is designed without any stepping, showing that he was still undecided about its form.

The plan of the Villa Pisani, it need hardly be said, derives from Palladio's famous villa La Rotonda, near Vicenza. The form was evidently an attractive one to Scamozzi, for in the *Architettura* he works out further variants on the same theme. These later studies may have been induced by his own work on Palladio's villa for about the year 1591, after Palladio's death, he was commissioned by the then owner, the Marchese Capra, to alter and repair it.

It was Scamozzi who roofed the *sala rotonda* with its existing cupola.

In the drawings which follow (Fig. 7b) we have yet another early work by Scamozzi, a design for a town house, the Palazzo Trissino al Duomo in Vicenza, completed in 1579. Scamozzi, in speaking of his design, says that his client, Signor Francesco Trissino, commissioned him to build this "casa assai onorevole" shortly following a visitation of the plague. He further remarks that the building was finished while he was absent in Rome and to this fact was due the bad execution of the principal stairs.

On comparing this sketch of the façade with the plate, Fig. 8 (*Architettura*, p. 258), it is seen that there is a difference in the fenestration. The sketch shows the central arched opening with the inner windows

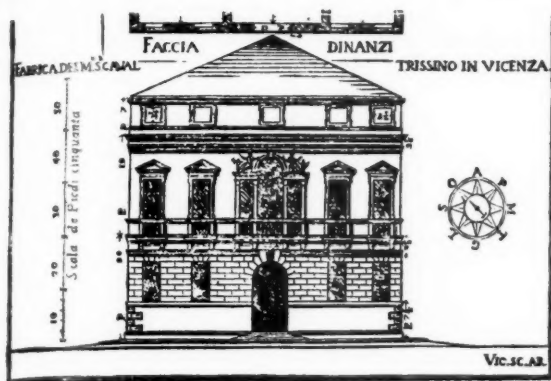


FIG. 8.—PALAZZO TRISSINO AL DUOMO, VICENZA

From *Idea della Architettura*, p. 258

on either side of it closely grouped, whereas in the plate illustration the range of windows is evenly spaced. The ornamental obelisk finials which surmount the façades in the sketch do not appear in the finished version. The two plans are almost identical.

The plan of the church and convent of the R. P. Teatini, as it was known in Scamozzi's day (now San Gaetano), at Padua, is the next design in order of date (Fig. 7a). These buildings, commenced in the year 1581, were apparently not completed until 1586. Scamozzi's drawing is a very lightly drawn sketch deftly washed in with brush lines, and judging from his marginal notes it is certainly an early, if, indeed, it may not be his first study for the plan. Along the top margin of the drawing he writes—first briefly in black lead and afterwards fully in ink—a suggested amendment of the line of the plan on that side. Along the left-hand margin, above the elevation of part of the conventual buildings, he notes the position for the stairs. A further inscription on the opposite margin gives a calculation of the length of the side of the square area containing the cloister court and surrounding buildings. But the plan itself shows that Scamozzi had not worked out all its details completely. For although the main lines and the disposition of the buildings on the site agree with the plate published by Danckerts (Fig. 9), the plan of the church block at this stage was still unsettled. In the sketch he puts in two staircases connecting this block with the conventual buildings where in the finished plan there is but one and this causes a modification in the arrangement of the connected chapels and adjoining rooms.

The next house design, that for the Villa Ferramosca at Barbano, which is on the road from Vicenza to Padua, dates from 1594; and the drawing reproduced in Fig. 4b, except for trifling differences in the dimensions of some of the rooms figured on the house plan, agrees with the plate printed by Danckerts (Fig. 10). It is the typical country villa plan of the period modelled on familiar Palladian lines. But in this case either the exigencies of the site or the purse of the proprietor did not allow Scamozzi to provide the usual symmetrically balanced garden court enclosed by a range of wine-cellar, granaries, stabling and other farm buildings. These are restricted to the north-east and east sides, the west side of the court being enclosed by a wall having a columbarium placed midway in its length.

The fifth sheet of drawings (Fig. 11) has a series of studies for the plan of the Casa Priuli at Carrara, some eight miles to the south of Padua in the direction

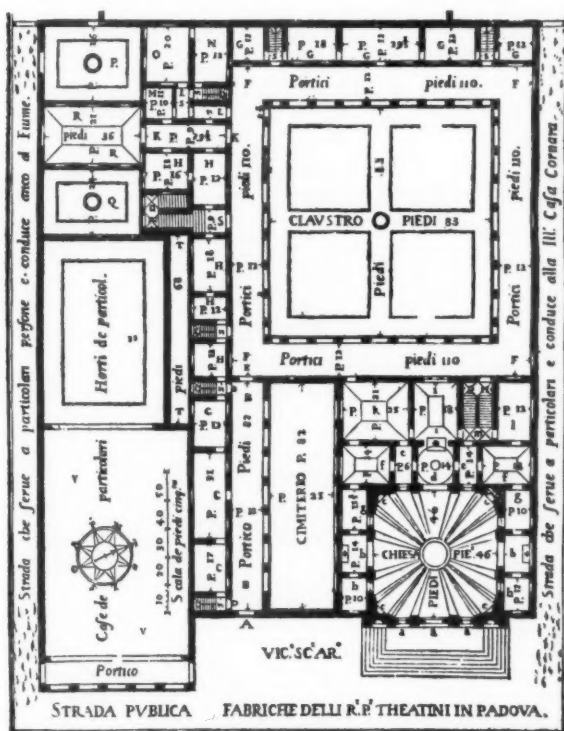


FIG. 9.—CHURCH AND CONVENT OF THE TEATINI, PADUA

From Danckerts's edition of Scamozzi's *Idea della Architettura*

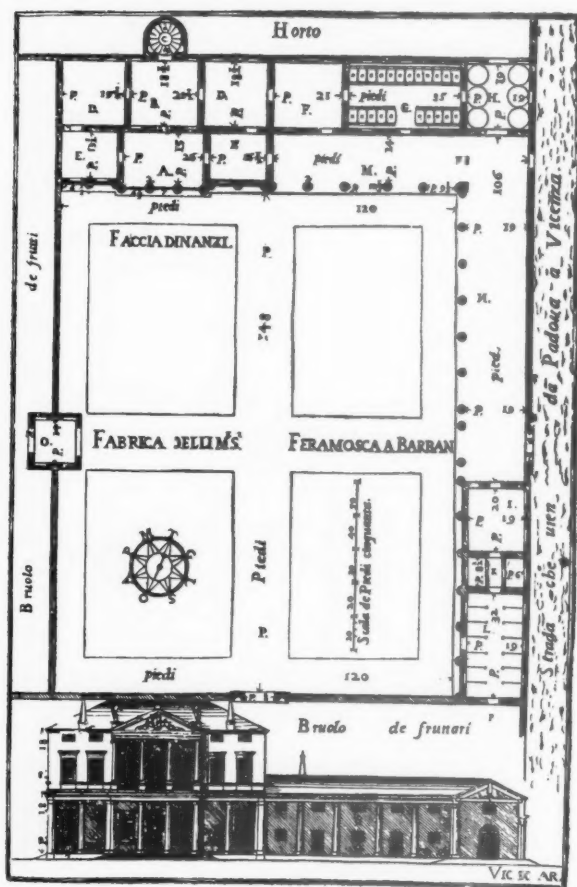


FIG. 10.—VILLA FERRAMOSCA, BARBANO

From Danckerts's edition of Scamozzi's *Idea della Architettura*

of Monselice. This is dated 1597. It is a particularly interesting document, for it was the very sheet which Scamozzi had with him when visiting the site, as we gather from his marginal notes. The development of the plan can be followed through various stages until with "E" we have the final study which is identical with the plate prepared for publication by Scamozzi (Fig. 12).

In the top margin above plan "B" is the date "adi 25 Zugno 97." A fortnight later, in the bottom margin beneath plan "E," Scamozzi writes, "segnate le fond<sup>e</sup> e principiare a cavare adi 8 luglio 97. l'angolo A piedi 5 di profonde." So here we have the actual date—8 July 1597—of the plotting of the

foundations on the site and the beginning of the excavations for them. At "A" (left-hand corner of the plan) he notes that the trench was 5 feet deep. The notes running down the left-hand margin of the sheet are his brief memoranda of the work allotted during the same visit to his masons, Francesco Marchesini and Giulio d'Urbino. The items specify in a very condensed form the quantities and rates for the stonework and brickwork for walling, vaulting, staircases, window-sills and the plastering, etc.

Scamozzi's terminology here is drawn from the Venetian dialect and some of these local names for materials, etc., it may be said, are to be met with in Palladio's text.

The work allotted to the mason Marchesini, which was to be done at his own cost, was the cutting of the stone for the stairs and window-sills; the winding stairs—"a bovolo"—being paid for at a slightly higher rate. The stone specified was the "masegna" (macigno), a local hard sandstone mentioned by the Paduan architect Viola Zanini<sup>6</sup> among the materials in use in the district. To Giulio d'Urbino was given the work of excavating for the foundations, with the walling both in stone and brick, the forming of the vaults of two types and the plastering. The latter work was to be laid on a foundation of "canne grosse," and it is interesting to observe as an instance of the continuity of building methods in Italy that this manner of employing reed matting seems to be the same as Vitruvius prescribes for the purpose. Barbaro refers to this method in his commentary on the Vitruvian text. It would appear from Scamozzi's notes that Maestro Giulio was to receive part of his payment in kind, for wine is among the allowances mentioned in addition to the materials for the work.

Scamozzi was very pleased with his plan, for on "B," the scheme finally adopted, he writes complacently, "bella e commoda Inventione." The house was evidently being built in part on old foundations, for on the same plan, against two of the walls, he notes that there were "fond<sup>e</sup> vecchie." He also puts down on the final plan that the front to the road looked out to the "monti di Padoana"—the Euganean hills—lying to the north-west of Carrara. Beneath the main series of notes Scamozzi records the number of his visits to the site. Three times he had come specially from Venice and twice while staying at Padua, finally adding that boat hire for the journeys had cost him 13 ducats. The original note reads as follows: "à Cà Priuli a Carrara / tre volte

<sup>6</sup> Zanini (G. Viola) *Della Architettura* (&c.), Padua, 1629, 410.

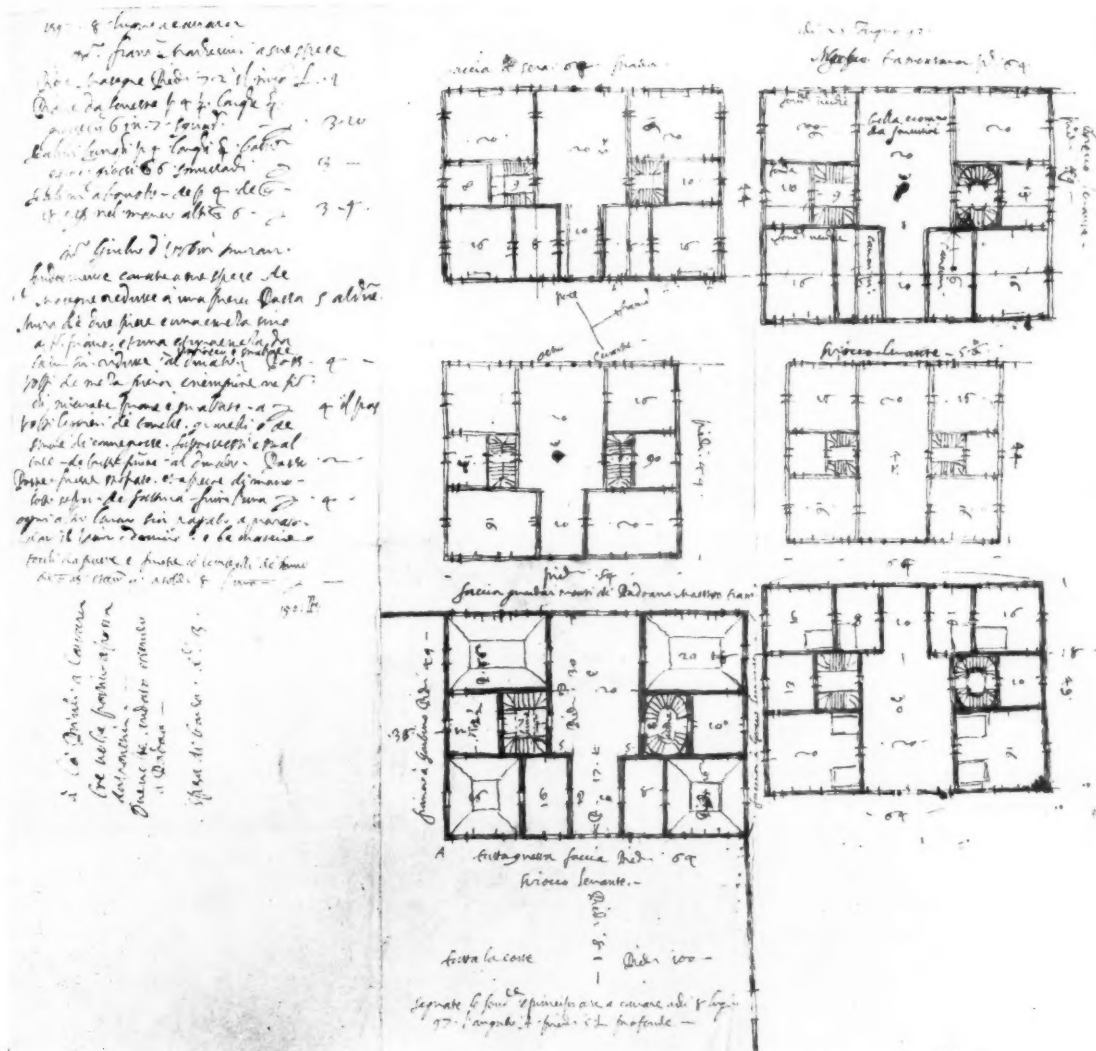


FIG. 11.—CASA PRIULI, CARRARA  
Studies for the plan by Scamozzi

partito apostata / da Venezia. / Due volte andato  
essendo / a Padova / spesa di barcha. d. 13."

There is no elevation of the house with the plans at Chatsworth, but as this design is another of those which he had had engraved for illustration it may be seen in the plate reproduced from Danckerts's edition of the *Architettura* (Fig. 12).

It will be observed that beneath Scamozzi's marginal notes and to the left of plan "E" (Fig. 11) appear the following number and symbol: 15.  $\text{F}$ . This is one of the marks which John Webb inscribed on a group of some 69 drawings now in the Burlington-Devonshire Collection, and, as was shown in my earlier paper dealing with these drawings, this and



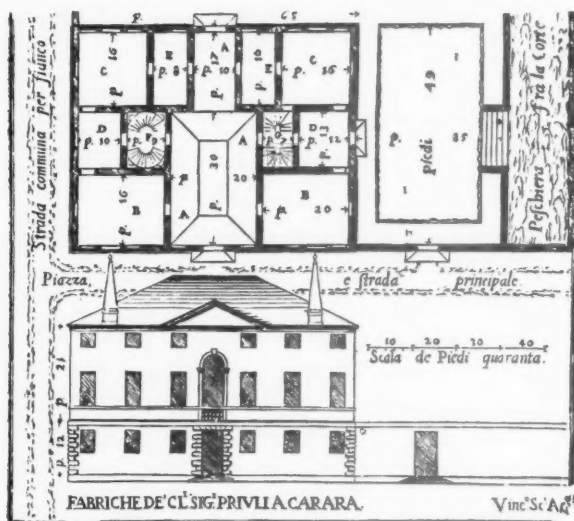


FIG 12.—CASA PRIULI, CARRARA

From Danckerts's edition of Scamozzi's *Idea della Architettura*

other markings by Webb helped to prove their former ownership by Inigo Jones. The four other associated drawings here reproduced all bear the same mark, though in their case it is inscribed on the reverse. It is to be regretted that Scamozzi's design for the Olimpico stage scenery (Fig. 1, frontispiece) is mounted down all round and being drawn on thick paper it is not possible to say whether there is any inscription on the reverse or not.

It is, of course, no matter for surprise that Inigo Jones should have been the possessor of drawings by Scamozzi, for he met him during his travels in Italy in 1613-14. Even from the two brief references to be found in his notes<sup>7</sup> to his meetings with Scamozzi it is evident that Inigo Jones did not miss the opportunity to learn what he could from the Italian master, who, twenty years his senior, was then approaching the end of his distinguished career, for he died in the year following Inigo Jones's return home. Scamozzi would have placed little value on such drawings as these, seeing that all the designs intended for publication in his *Architettura* were then permanently recorded in engraved form. To Inigo Jones, on the other hand, their value would have been great, for he was still at an early stage in his career as an architect. And although he found fault

with many details in Scamozzi's work and in one instance goes to the length of stigmatising him as "purblind," nevertheless he also records the illuminating fact that at their meeting Scamozzi instructed him on some point in the technique of vaulting which he apparently had not then mastered. And from two other notes in his copy of "Palladio" we learn that he actually carried this lesson on vaulting a stage further by paying a visit to one of Scamozzi's villas outside Padua. This was the Villa Molin, now the Villa Dondi dell' Orologio at Ponte della Cagna.

Inigo Jones's first reference to the Villa Molin occurs in his notes on Palladio's description of the Villa Mocenigo. Palladio, speaking of a light type of vaulting used in certain rooms there, says: "... le maggiori hanno i volti alti piedi ventuno, e sono fatto di canne, accioche siano leggieri. . . ." In the margin against this Inigo Jones drew a pointer and wrote: "Remember the volti of Caanes in Molini his villa." This, as it happens, was the same type of vaulting that Scamozzi mentions in his notes on the Casa Priuli already quoted.

But Inigo Jones found more to interest him at the Villa Molin than the vaulting, for in the course of some comments on the treatment of balustrading between columns, arising out of his study of Palladio's restoration of the Roman temple at Assisi, he says with regard to the case where a balustrade rail has to be let into "the bddy of the collome as I did at Greenwich in y<sup>e</sup> portico<sup>8</sup> tourdes the parke and as I have scene at ponte della Cagnia near padoo in a villa of clari<sup>mo</sup> Molin." This is an extraordinarily interesting revelation, for we see that when at work on what, so far as we know, was his earliest design in a purely Italian manner—the Queen's House at Greenwich, which preceded the Banqueting House—if Palladio was always in the forefront of his studies Inigo Jones did not disdain to refresh himself with what he had learnt from the work of Scamozzi. And it was not only the minor matter of the balustrading in the loggia of the Villa Molin that had impressed itself on Inigo Jones, for the treatment of the main façade of Scamozzi's villa is reflected in more than one feature of the design of the park front of the Queen's House.

And if the Villa Molin was of such interest to Inigo Jones, what are we to think of the whole-hearted admiration displayed by John Webb for this design of Scamozzi's? The front elevation of the villa is seen in Fig. 13, and in Fig. 14 we have the scarcely varied transcript of it composed by Webb.

<sup>7</sup> Inigo Jones's annotated copy of Palladio's *Architettura* in the library of Worcester College, Oxford.

<sup>8</sup> The loggia.



His drawing is reproduced from the original in the collection at Worcester College, Oxford. There can be no gainsaying whence came his inspiration. The extended courtyard wings which Webb has grafted upon the slightly modified Scamozzian stem are similarly a close adaptation of a common Palladian treatment of which several examples are to be found in the pages of the "*Quattro Libri*."

To return to the first described drawing by Scamozzi at Chatsworth, his design for part of the stage scenery of the Teatro Olimpico at Vicenza; when it is stated that this drawing is found in a volume containing others once in Inigo Jones's possession the implication here is hardly to be resisted. And it must be remembered that Inigo Jones owned an original—perhaps the first—study made by Palladio for the *scena* of the Olimpico theatre.<sup>9</sup> Whether he got it from Scamozzi or not we shall never know, but it is at least probable that, when called upon to complete the stage of the Olimpico, Palladio's drawings of the theatre came into Scamozzi's hands in the course of his work. But however

Inigo Jones acquired the drawing we may be sure he counted it one of the rare prizes of his collection,



FIG. 13.—VILLA MOLIN, PONTE DELLA CAGNA, PADUA  
From Scamozzi's *Idea della Architettura*, p. 275

just as it remains to-day one of the most interesting relics of Palladio in the Burlington-Devonshire Collection.

<sup>9</sup> See *The Burlington Magazine*, vol. xxi, Nos. 173 and 174 (1917).

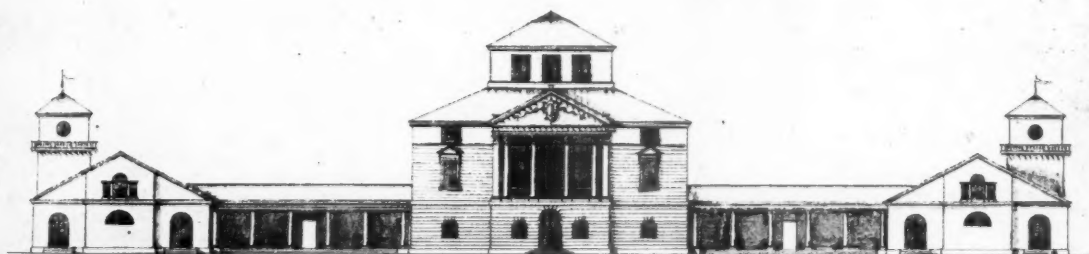


FIG. 14.—DESIGN FOR A HOUSE BY JOHN WEBB, BASED ON THE VILLA MOLIN BY SCAMOZZI  
(Sheet 54, Worcester College Collection)

## Reconditioning of Slum Houses

BY C. BERTRAM PARKES, L.R.I.B.A.

Ten years ago the energies of most local authorities were directed mainly towards the provision of new houses to meet the housing shortage. Very little attention was given to the needs of the slum dweller, either by action under the various Public Health Acts or by rehousing. At this time it was obvious that despite the large housing schemes of the City of Birmingham, many thousands of people would have to continue to live in back-to-back houses near the centre of the city.

In 1925, therefore, a Society called the Birmingham Copec House Improvement Society, Ltd., was formed with the object of buying insanitary dwellings and reconditioning them. This article describes some of the work carried out by the society, much of which has been experimental in nature.

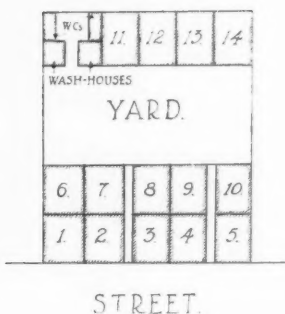


Fig. 1 (above): Typical plans of back-to-back houses in Birmingham

Fig. 2 (left): A court of back-to-back houses

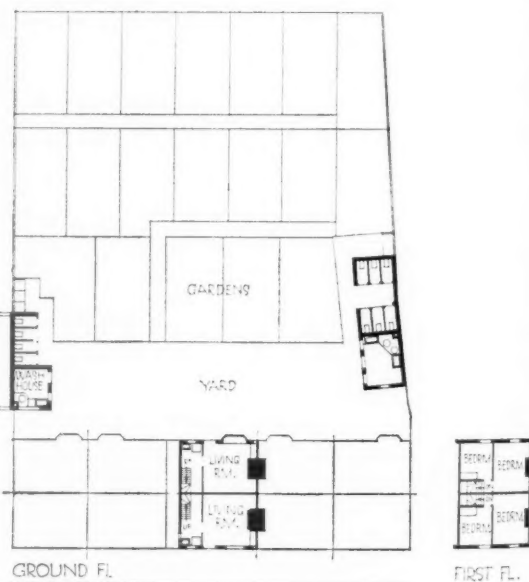
Fig. 3 (right): An early example of reconditioning

dwelling, and washhouse accommodation in the proportion of one washhouse to four families. An example of such work is shown in Fig. 3. Particular attention is called to the small gardens, provided in place of the rubbish-covered open space originally existing. The cost of this work was approximately £120 per house, which may seem a very high figure. It must, however, be emphasised that the standard of work was reasonably high and that repairs of this kind are necessarily expensive.

When this reconditioning was first undertaken it was anticipated that the life of the improved dwellings would not exceed 10 or 15 years. With the passing of time, it became obvious that these original estimates were too optimistic and that many properties would probably remain for a much longer period.

The back-to-back house is a type of dwelling which must be removed from our cities as soon as possible. Its chief defect is lack of through ventilation, and although in many schemes additional windows and a very much better circulation of air has been provided, it is manifestly impossible by merely reconditioning to afford a really satisfactory standard of ventilation.

The sanitary arrangements of the house leave much to be desired. W.C.'s are usually grouped together in the yard, not more than one being provided to two



The back-to-back houses in Birmingham are nearly always arranged according to one of the three plans shown in Fig. 1. A typical court of such houses is illustrated in Fig. 2. The earlier work of the society was concerned principally with reconditioning houses of this class and the improvements carried out were as follows: The structure was thoroughly repaired, including stripping and reslating roofs, replacing defective floors, stairs and plaster, the provision of a sink with water supply in each house, the construction of a ventilated food cupboard, the erection of a separate W.C. to each

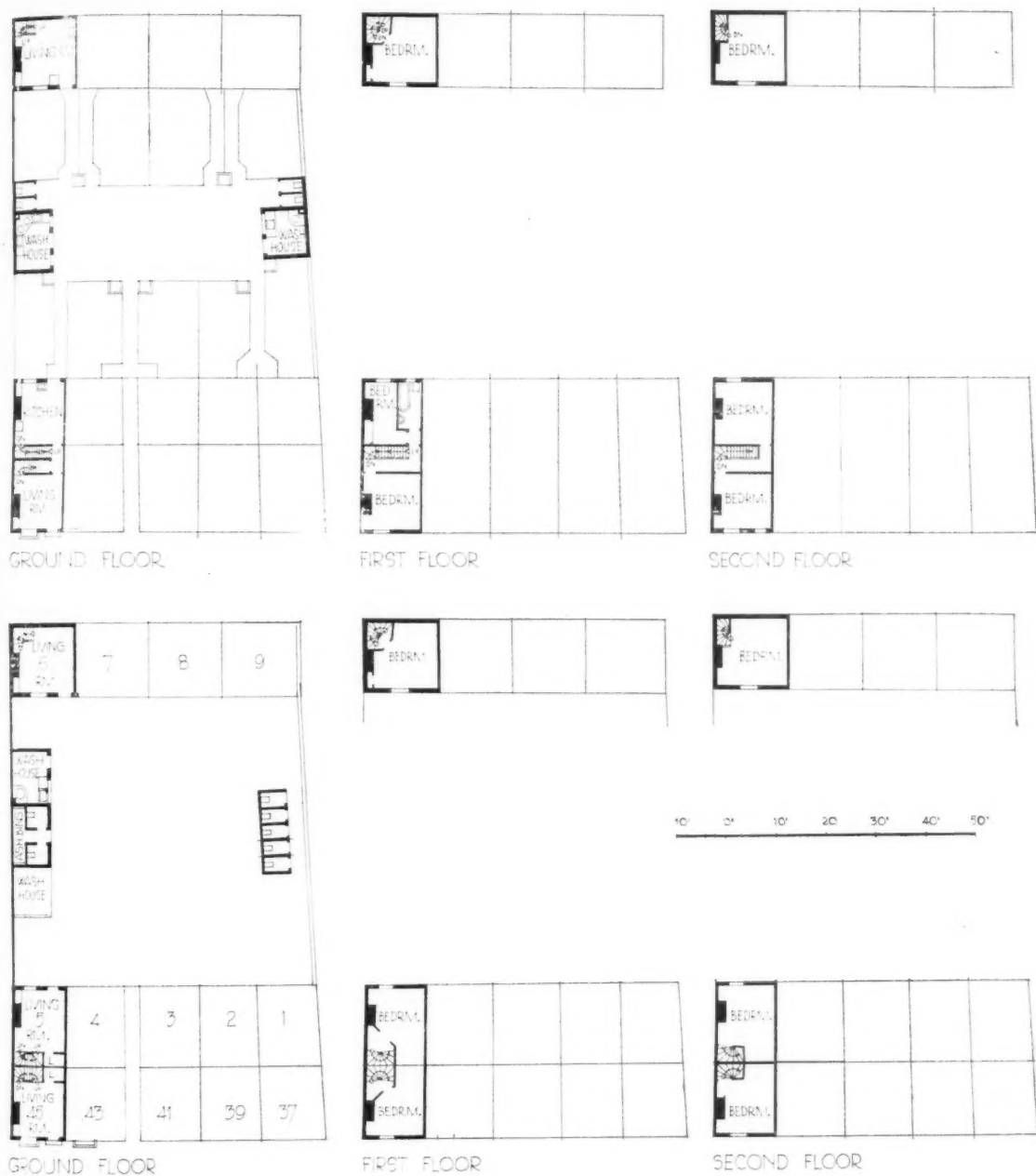


Fig. 4.—An example of conversion of back-to-back houses, costing £240 per house. This is open to the objection that only half the tenants are rehoused. The lower plans show the houses before conversion



Fig. 5.—Plans showing the conversion of property that included a small de-licensed public house

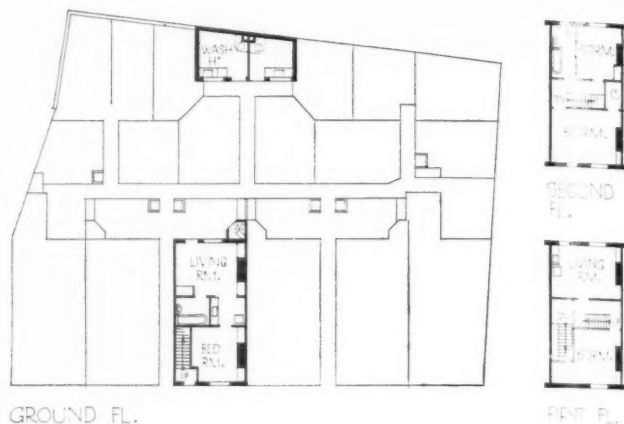


Fig. 6.—Conversion into flats with maisonettes above, overcoming the objection that top floors of these buildings are not high enough for living rooms

families. In the "Copec" schemes a standard of one W.C. per family has always been maintained, but even so, the fact that these conveniences have nearly always to be built in a common yard makes the arrangement far from satisfactory.

Staircases generally consist mainly of winders, and in some cases there is considerable variation in the height of the risers. One staircase was found in which the rise varied from 9 inches to 10 $\frac{3}{4}$  inches! Some improvement can usually be made when providing new stairs, but space is not always available for much alteration.

In the later schemes carried out the society has aimed at totally eradicating the disadvantages of the back-to-back house, thus turning insanitary houses into dwellings which may be expected to have a longer useful life.

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Fig. 7.—A scheme, better than that shown in Fig. 6, of conversion into flats and maisonettes.

On the right before alteration, on the left after alteration

Conversion into through houses is relatively simple, but in order to do it satisfactorily it is found that a large amount of cutting away and rebuilding of internal walls is entailed. A workable scheme is shown in Fig. 4. The accommodation in the converted houses is very good, and in actual fact is more than sufficient for the type of tenant living in them. The cost of the work was very high indeed, due to the appalling state of the structure. An expenditure of approximately £240 per house was incurred, but even so, the rents have been fixed at 12s. 6d. per week, inclusive, which is less than the rent originally charged for one of the old back-to-back houses on the property. Conversions of this kind are open to the objection that half the tenants have to be rehoused, and although this results in a reduced density, such schemes are felt to be suitable only in certain definite cases. Where properties are situated in better class districts adjoining houses of the through type there seems to be some case for conversion.

Fig. 5 illustrates a property consisting of a small de-licensed public house and two back-to-back houses converted into four flats. It will be noticed that the public house was itself originally two houses. The scheme has been very satisfactory, but the absence of bathrooms

in the ground floor flats is to be regretted. The cost was £160 per flat. It will be realised that by this arrangement through ventilation is provided to each dwelling.

The conversion shown in Fig. 5 has one serious drawback, which is that the height of the rooms on the top floor, while great enough for bedrooms, is not sufficiently high for living rooms. In the next experiment, Fig. 6, this difficulty is overcome. Each group of four houses is converted into two ground floor flats and two maisonettes. This arrangement makes no reduction in the number of families housed, and by placing the small families in the ground floor flats the needs of the various households have been met. The cost was £140 per dwelling, which included demolishing two cottages, building new washhouses, taking up paving and forming gardens, thorough repair of the structure, and the provision of hot water supply worked from the living room fire.

A similar scheme, but one that is rather more satisfactory, is indicated in Fig. 7. Here, instead of providing two small ground floor flats, one large flat only is planned with two maisonettes above. Thus three families are housed in the space originally occupied by four. The cost was £160 per dwelling.

A few years ago it was found that de-licensed public





houses were being used as lodging houses and tenants crowded together with altogether inadequate sanitary and kitchen accommodation. The society, therefore, acquired several public houses and turned them into flats. These buildings have been used to some extent as decanting houses to accommodate tenants from properties which are being reconditioned. The bathrooms and hot water supply which were omitted are now under consideration, and will possibly be installed. Figs. 8 and 9 show two of these schemes.

Housing reformers will probably ask themselves whether work of the kind described is really worth while. Very possibly they will decide that the cost is too great and the results too much in the nature of a compromise. But, in justification of the work of the society responsible, it must be stated that, thanks to their activities, 330 families have been housed under reasonably healthy

conditions. This would certainly not have been the case had no such society existed.

The rent collection and management of the properties is carried out by a trained woman property manager and her assistants, who work on the Octavia Hill System. The results of this management, coupled with the thorough cleansing and reconditioning of the houses are very marked indeed. Not only is the standard of cleanliness and behaviour raised, but arrears of rent are cut down to negligible proportions.

In view of the fact that the new Overcrowding Bill provides for a certain amount of reconditioning of suitable properties, it is thought possible that the schemes mentioned in this article may be of interest to architects undertaking work of this nature.

The schemes illustrated were carried out by the Architects' Department of the Bournville Village Trust.



Figs. 8 and 9.—Two schemes showing the conversion of de-licensed public houses into flats

## Sand-lime Bricks and the Bye-laws

Local authorities are often regarded in the light of natural enemies to building enterprise, administering bye-laws, often antiquated or obscure, and in cases of ambiguity, arbitrarily dictating the most restrictive rendering of the letter of the law.

Whatever may have been the causes of this unpleasant feeling of antagonism between building and building law, the following correspondence between the Royal Institute and the London County Council on the subject of the legality of the use of sand-lime bricks, is sufficient to show that at least one local authority (and that the greatest in the Kingdom) is not only willing to weigh an argument, but is prepared to reverse a decision in the interests of building progress where it can be shown that such an action can be taken without violence to the laws which it is the duty of that authority to administer in the public interest and which are equally binding on administrator and administered.

To the Clerk of the London County Council

16 January 1935

SIR,—The Royal Institute has been informed that the London County Council has recently decided that the use of sand-lime bricks for the construction of external walls is contrary to the provisions of the bye-laws made under the Metropolis Management and Building Act Amendment Act, 1878, and requiring:—

"The external walls of every house, building or other erection shall, except in the case of concrete buildings, be constructed of good, hard, sound, well-burnt brick or of stone."

It is understood that the decision of the council is not based on any constructional defect in the material as such, and for which a British Standard Specification affords means of control, but because, from the method of manufacture, sand-lime bricks are not "well-burnt."

Although the bye-laws invest the London County Council with power of waiver, the necessity of obtaining the Council's consent in every case before these bricks can be used, not only penalises this particular branch of industry, but constitutes an inconvenience to building generally.

The Council of the Royal Institute therefore begs that the London County Council will reconsider their decision on the following grounds:—

In the absence of any definition of "brick" in either the London Building Act or the Bye-laws, it is not unreasonable to attach to the term the meaning implied in common use, namely "clay kneaded, moulded and baked by fire or sun" (Oxford Dictionary). The context in the bye-law itself indicates such intention.

The words "sand-lime brick" are a trade term which, like many others (such as "concrete tiles" or "asbestos cement slates"), is loosely used to denote the purpose of the article rather than the material.

It is submitted, therefore, that the so-called "sand-

lime brick" is not a brick within the meaning of the bye-law or the usually accepted meaning of the word.

Sand-lime bricks are calcium silicate, and although synthetically combined, are, in fact, both physically and chemically composed of sandstone.

The bye-law permits of the use of sandstone.

It is, therefore, respectfully submitted that these stones (although not of natural formation, and despite their trade name) are really in compliance with the London County Council's Bye-laws.

Your obedient servant,

(Signed) IAN MACALISTER.

To the Secretary, the Royal Institute of British Architects

5 March 1935

SIR,—With reference to your letter of the 16 January 1935, as to the use of sand-lime bricks in the construction of external walls, I am directed to inform you that the Council has decided that for the purposes of Section 57 of the London Building Act, 1930, and the bye-laws made by the Council under Section 16 of the Metropolis Management and Building Act Amendment Act, 1878, sand-lime bricks shown to possess the nature and properties specified in British Standard Specification No. 187 may be regarded as blocks of stone.

The effect of this decision is that the necessity of applying to the Council for a dispensation from the bye-laws so as to permit of the use of such sand-lime bricks no longer exists.

The Council's decision has been communicated to the District Surveyors.

I am, Sir, your obedient servant,

(Signed) G. H. GATER,

Clerk of the Council.

It will be observed that the decision relates to such material only as can be shown to be of the nature described by the British Standard Specification. There still remains this difficulty, therefore, that while one may obtain sand-lime bricks of the required quality, it is not so easy to show they are of that quality, for even test sheets leave the question open as to whether the tests relate to the actual bricks delivered on the site.

It is understood, however, that some of the manufacturers are proposing to adopt a very effective method of overcoming this difficulty. They are arranging to adopt the "mark" of the British Standards Institution. The mark is granted by the Institution under licence to such makers as are prepared to conform with stringent requirements as to tests and supervision, as that, by specifying sand-lime bricks *bearing the mark of the British Standards Institution* one can be assured that not only are the manufactures, testing and classification of the bricks (or should one say "stones"?), subject to the supervision of an independent authority with whose specification they are required to comply, but that every brick bears its own certificate.

*A reference to this correspondence will be found in the editorial columns*

## Review of Construction and Materials

*This series is compiled from all sources contributing technical information of use to architects. These sources are principally the many research bodies, both official and industrial, individual experts and the R.I.B.A. Science Standing Committee. Every effort is made to ensure that the information given shall be as accurate and authoritative as possible. Questions are invited from readers on matters covered by this section; they should be addressed to the Technical Editor.*

*The following are addresses and telephone numbers which are likely to be of use to those members seeking technical information. There are many other bodies dealing with specialised branches of research whose addresses can be obtained from the Technical Editor. We would remind readers that these bodies exist for the service of Architects and the Building Industry and are always pleased to answer enquiries.*

*The Director, The Building Research Station, Garston, Nr. Watford, Herts. Telegrams: "Research Phone Watford." Office hours, 9.30 to 5.30. Saturdays 9 to 12.30.*

*The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101. Telegrams: "Timberlab Princes Risborough." Office hours, 9.15 to 5.30. Saturdays 9.15 to 12.*

*The Director, The British Standards Institution, 28 Victoria Street, London, S.W.1. Telephone: Victoria 3127 and 3128. Telegrams: "Standards Sovest London." Office hours, 9.30 to 5. Saturdays 9.30 to 12.30.*

*The Technical Manager, The Building Centre Ltd., 158, New Bond Street, London, W.1. Telephone: Regent 2701, 2705. Office hours, 10 to 6. Saturdays 10 to 1.*

### WHAT IS A THREE-INCH LAP?

BY ALFRED H. BARNES [F.]

With all our efforts towards standardisation, we yet lack a "standard" dictionary of building terms. The Science Committee was recently appealed to in a dispute between architect and builder as to the meaning to be applied to the term "lap." What is meant by "slates laid with a three-inch lap"?

Assuming that the slates are centre nailed, the question presents no difficulty. Slates are laid with a three-inch lap when there is a distance of three inches in each case between the foot of a top slate and the head of the corresponding bottom slate. But in the case under consideration, *the slates were top-nailed.*

The "standard" textbooks (which incidentally are also lacking in standardisation and by no means unanimous) in the main favour the custom of measuring the lap (in the case of slates nailed near the top) from the foot of the top slate to the nail-hole of the bottom slate, thereby reducing the gauge by a half an inch or an inch. After due investigation, the Science Committee found that there was ample proof that this mode of measurement was a more common practice than measuring the lap from the head of the bottom slate.

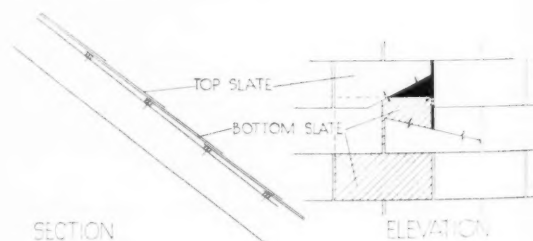
But is this common practice sound? The object of the lap is to prevent water—after running down a slate and penetrating between the slates immediately below—ultimately finding its way back past the head of the bottom slate. Hence the necessity of specifying a sufficient "lap" in order that the distance between the foot of the top slate and the head of the bottom slate might be in excess of that through which water might be driven by the wind or drawn by capillarity.

At first thought and considering the section only, it would appear reasonable if the bottom slate be perforated for nailing (say) an inch and a half from the head, that that dimension should be added to the lap in order to prevent the water creeping up from the point of ingress and finding the nail-hole even though it may not reach the head of the bottom slate.

If the question be further considered, however, the reason for such a precaution is not so evident. In the accompanying diagram the vulnerable point, where the foot of the top slate intersects with the joint between the intermediate slates just below, is indicated by an arrow. It will be observed that the nail-holes in the bottom slate are so remote laterally from this

point of ingress that probably the water would follow up the joint in the intermediate slates and find its way in over the head of the bottom slate long before it travelled the more horizontal but greater distance to the nail-holes.

On the other hand, it might be argued that (owing to gravity or for any other reason) the water might travel through the greater distance more readily on account of its being more horizontal and that, therefore, the nail-holes would prove the danger. But it must be remembered that the nail-holes are very near the sides of the slate, and from such an argument one might deduce the startling fact that if, say, Countess slates were used instead of Duchess, since the edges of the Countess slates would correspond to the position of the nail-holes in Duchess slates, the water entering anywhere between the intermediate slates would travel horizontally over the bottom slate and reach the edges even more readily than it would have found the nail-holes in the Duchess slates. In other words, any roof covered with Countess slates must leak all over; which (to quote a previous writer) is absurd.



Nevertheless, trade customs are generally based on sound practice and it would be interesting to discover the underlying reason for measuring the lap, in top nailed slating, from the foot to the nailing line instead of to the head of the bottom slate.

The Science Standing Committee would be glad of members'

observations on this matter with a view to attempting to arrive at definite recommendations.

There is evidently room for two opinions on the matter, and it might save confusion, in jobs where slating is so fixed, if the gauge were specified instead of the lap. Where the lap dimen-

sions must be specified (as in the case of diminishing slates) it might be fairer to the contractor and less troublesome to the architect if the specification defined the "lap" as well as stating what the lap is to be, which will of course depend on the pitch of the roof and other conditions.

## FIRE IN BUILDINGS

MANUAL OF SAFETY REQUIREMENTS IN THEATRES AND OTHER PLACES OF PUBLIC ENTERTAINMENT. Issued by the Home Office. H.M. Stationery Office. 2s. 6d.

REPORT ON MEANS OF ESCAPE FROM FIRE. Issued by the Building Industries National Council. 1s. 3d.

These two publications concerned with public safety and the extinguishing of fires in buildings have been issued by separate bodies at the same time. Both have been evoked by the same causes, namely: (a) That there is a complete lack of uniformity in regulations for safety or that will aid in prevention or rapid control of fire in this country; in some districts there is a complete absence of such regulation; (b) that such regulations, where they exist, are often based on unsound premises, are arbitrary in operation and sometimes defeat their own intention; (c) that the absence of clearly defined regulations often leads to uncertainty and heavy expenditure to the building owner in constructing or altering a building.

Neither publication is primarily concerned with fire-resisting construction as such. This is dealt with as far as existing standards go, by the British Standard Definition for Fire Resistance of Buildings and Structures No. 476 of 1932. Full scale tests, about to be undertaken with the co-operation of the Building Research Station and the Fire Offices Committee, should carry this work much farther than the somewhat tentative definition of terms, which it is at present.

The Home Office Manual is an "omnibus" consideration of safety in case of fire in theatres and public halls. The B.I.N.C. Report is concerned with all classes of building in general terms, the planning of means of escape from them, the influence of height on fire-fighting and escape and the limitation of cubical contents or floor areas. Nevertheless, large portions of the two publications are on parallel lines and they can well be reviewed together.

### THE MENACE OF FIRE

The general public which looks upon a large scale fire as an entertaining spectacle (which it frequently is) is not aware of the heavy loss of life and the enormous financial losses annually incurred in this country through fire. It is also not aware that throughout the country many of the older theatres, public and dance halls are extremely dangerous and far below the lowest standards of safety that would be required in a new building. The Manual makes clear that many existing seaside pier pavilions are little better than death-traps, being not only built of wood but adding the supplementary risk of drowning for those that have escaped the fire. The Home Office Manual reinforces its recommendations by quotation of cases from the records of the Home Office and these, as far as theatres are concerned, indicate the really serious state of affairs at present existing. The tale of tragic disasters, many from trivial causes, makes illuminating reading. In many cases the real causes of disaster do not appear in the press at the time of the occurrence or are obscured by irrelevant or sensational detail.

### THE NEED FOR UNIFORMITY

There is little doubt that standards and regulations both of safety and fire resistance should be uniform and universally applied throughout the country. They should be determined for all classes of building, *old as well as new*, and applied rigorously. Only by this means will a full measure of safety for the public be assured. At the same time it will ease the present difficulties and uncertainties in which the building owner and his architect find themselves in erecting new or altering old buildings. This is a necessary complement to the present demand for uniformity in building by-laws controlling stability, weather resistance and sanitation of structures.

It is not generally realised that the Secretary of State for Home Affairs has no power to make regulations for the safety of places of public entertainment, except in the case of cinemas. The leading municipalities have their own safety regulations, which differ in standards and requirements; smaller provincial towns often have none at all. The Royal Commission on Fire Brigades and Fire Prevention recommended that a model code of requirements be issued for the guidance of local authorities, and the Home Office Manual is intended to fulfil that requirement for places of public entertainment. This is a good step towards the necessary end.

### CLASSIFICATION OF BUILDINGS

Both publications here reviewed attempt a classification of buildings according to fire risk. The Manual gives an exact and specifically outlined classification into three categories, taking into consideration old as well as new buildings. The Report outlines a schedule of hazards, again in three categories, according to the user of the building, but is concerned only with new buildings. Some such classification would appear very desirable, but aimed at covering all types and user of buildings and both new and old. Each category should be covered by exactly defined regulations, principally on means of escape.



### MEANS OF ESCAPE

Both publications likewise attempt to arrive at formulae by which the number and sizes of escapes can be determined. The Manual takes into account the construction of the building, the arrangement and protection of stairs, the exposure hazard, a factor dependent on height of floor above or below ground, and the class of user of the building. The Report is a little more exact and considers the number of persons permitted on each floor, the number of units of stair width, the building construction, the protection of vertical openings, automatic sprinklers, horizontal exits, occupancy, gross area of each floor and the height of the building. Both are agreed on the unit of exit width (admitting one person at a time) as 22 inches—a unit that appears to be used in America and Germany.

The prime requirement in all buildings is means of escape for the occupants in case of fire. The Report calls for a simplification of regulations, the Manual for a true estimate of the safety of audiences taking all factors into account. The establishment of a formula would meet both these demands.

### HEIGHT OF BUILDINGS

The Report deals in some detail with the problem of fire fighting in high buildings, that is, above the London limit of 80 feet. It states that no adequate reasons can be found for the present limitation of height from a fire point of view. At the same time it recommends that the present restrictions in London regarding the ratio of openings to solids in external walls are largely meaningless and should be abolished. It concludes that in buildings of modern fire-resisting construction the provision of dry rising mains with suitable landing valves and hose on all floors would, in fact, render easier attack on fires at high levels by the fire brigade than does the present method of working from street level. In very high buildings fire towers for the use of firemen should be provided to enable them to reach upper levels readily. That these methods are effective in the high buildings of America is incontrovertible. Enquiry in America revealed the fact that "there had been no fire of any consequence in up-to-date American buildings."

The dry rising main should not be confused with the internal system operated by electric motor pump necessary for very high buildings in the United States. The dry rising main has a connection at the foot to which the Fire Brigade motor pump can be attached. It is really an alternative to dragging hose upstairs or operating from an external turn-table ladder. The existing fire engine pumps are capable of a vertical lift of nearly 400 feet in such a dry rising main. A main is, in fact, at present installed in St. Paul's Cathedral, and delivers efficient jets at 360 feet above ground level when operated by a fire engine pump.

### PRIVATE FIRE APPLIANCES

It is an axiom that the earlier a fire can be tackled the easier it is to get under control. Both these publications under review have a good deal to say about types of private fire appliances and their use. The Report has also an eye to the water damage usually caused by fire brigades. The Manual considers patent hose reels and bucket hand pumps of the "Bantam" type preferable to chemical extinguishers. Of the latter one type is entirely unsuitable for use in places of public entertainment, while the other is condemned on the grounds that it requires too detailed and regular inspection.

The Report appears to consider the patent hose reel with 100 feet of  $\frac{3}{4}$ -inch hose preferable as a "self-aid" appliance to the

full-way  $2\frac{3}{4}$ -inch hydrant. This last requires considerable quantities of water and is not easy to get to work. Moreover, when the fire brigade can be relied on to arrive within two or three minutes there seems little need to provide heavy fire-fighting equipment in the building. It is suggested that the hose reels should be fed from a high-level tank, which being independent of the street mains will not involve a loss of pressure when the street hydrants are turned on.

Architects specifying internal fire appliances for places of public entertainment would be well advised to consult the Home Office Manual for exact specifications of complete outfits for each class of building and of each type of recommended appliance. These last are fully illustrated.

### STAGE CONSTRUCTION

Existing practice in stage construction and equipment is considered in the Manual to require little amendment. The importance of an efficient roof vent of the haystack lantern type over the stage is emphasised. In the Palace Theatre, Edinburgh, fire in 1910 the fire curtain jammed some 10 feet above the stage, revealing to the audience one of the fiercest stage fires on record in which nine performers and stage staff perished. But the stage roof vent functioned perfectly, and the audience were able to leave the building without a single casualty.

The use of gas as a secondary means of lighting is considered undesirable. Should the stage roof vent delay opening (or be non-existent) a stage fire may cause a rise in air pressure greater than that of the gas supply, and extinguish the light. This happened at the Ring Theatre fire in Vienna in 1881, when there were 450 casualties.

Emphasis is laid on the risks very frequently found in small auditoria in the country, such as village halls. The fire at Drumcollogher, Co. Limerick, in 1926, when 50 persons were killed out of a total of 150, is cited as a possible result of neglect of precautions and lack of regulation by local authorities. The Manual strongly recommends that in all halls seating more than 400, where inflammable stage scenery is used, the provision of a fire-resisting proscenium wall, some form of roof vent, and a heavy wool curtain with some form of drencher to keep it wet for a short period, is the minimum compatible with safety.

It may be noted here that in discussing fire resistance in structures the Manual adheres to the existing bad practice of specifying fire protection of steelwork in thicknesses of brickwork or concrete. This portion should be redrafted to conform with the new Steelwork Code in which fire-resistance is specified in terms of heat transmission.

### CONCLUSION

The B.I.N.C. Report is a reasoned plea for amendment and simplification of fire requirements, principally those of London, mainly with a view to easing the existing difficulties of architects and building owners and also seeking to prove that the present restrictions on height of buildings and cubical contents of interiors cannot be justified on grounds of fire risk.

The Home Office Manual should be in the possession of all architects building places of public entertainment, not only theatres and cinemas but also dance halls, village halls, and indeed all types of halls seating more than 100. Adherence to its recommendations will cover all but the most individual requirements of the larger cities and may lead to waiver or amendment of the latter where they are unduly restrictive. The Manual is, however, mainly aimed at Local Authorities.



## SOME RECENT TECHNICAL BOOKS

## "ELECTRICIAN"

The Institution of Electrical Engineers have just published the tenth edition of their Wiring Rules. These rules are now entitled *Regulations for the Electrical Equipment of Buildings* and are published by E. and F. Spon at 1s. 6d. (cloth covers), 1s. (paper covers).

These regulations have for many years defined good quality practice in electrical installations. While it is now fairly general practice for architects to specify that electrical work shall be in accordance with these regulations, and indeed the majority of electricity undertakings demand it, the practice is not fully established, particularly in small plants generating their own current or where a consulting electrical engineer is not employed. Architects should realise that these regulations form a fairly thorough safeguard against trouble in electrical installations.

The Regulations have been adopted by the Electricity Commissioners to define their requirements in installations fed by the Grid.

## ELECTRIC HOT WATER INSTALLATIONS

A thorough and useful treatise entitled *Hot Water and Steam Supply by Electricity* has just been published (Spon, 7s. 6d.). The author, Mr. Frank C. Smith, is both an electrical engineer and a heating and ventilating engineer.

Unlike many similar treatises dealing with one particular fuel, this book is entirely free from the element of propaganda. Mr. Smith attempts to show where and how electricity can usefully be employed for heating water, avoiding on the one hand comparisons with other fuels—comparisons often made and always open to argument—while on the other hand investigating the field of electricity both impartially and in very full detail.

In form the book is inclined to attempt too wide a field. The earlier chapters on temperature measurement, electrical fundamentals and the plumbing of hot water installations are elementary—very useful to the architectural student (and indeed to many practising architects), but mere alphabet to the heating engineer. The later chapters get into the deep waters of electrical and heating technicalities, waters too deep for the architectural student but affording good fishing to the heating engineer. Nevertheless, for the scientifically-minded architect or student, there is much profitable reading in the book.

The author proves fairly conclusively that the best form of electrical hot water system is one of storage, having a low heat input. The electrical geyser type, heating cold water more or less instantaneously, demands heavy switchgear and cables, so that its use is limited to very small types of apparatus. The service given by a storage system depends on the fact that demands for domestic hot water are spasmodic and give time in which the low capacity heater can heat up enough water for the peak times. Consequently the efficiency of a storage system as a provider of hot water depends on insulation. The insulation of the storage heater is usually looked after by the makers; but the insulation of the equally important circulation or distribution system is a matter for the architect or for the heating consultant in the case of large buildings.

There is not space here to do more than refer briefly to some more outstanding conclusions. The use of copper piping is recommended for two reasons. The author states that the flow of water from a copper pipe is better than from a wrought iron

one of equivalent bore ( $\frac{3}{8}$  inch copper equals  $\frac{1}{2}$  inch wrought iron); consequently the larger the pipe the greater the surface area from which heat can be lost; the copper pipe presents an advantage on this ground alone. But, in addition, the semi-polished surface of a copper pipe is a poor heat emitter, far less efficient than a dark and rough iron surface. This fact is quite contrary to popular belief, which assumes that because copper has a high thermal conductivity it must also have a correspondingly high figure of emissivity; the contrary is the case, particularly with the semi-polished surface of the ordinary commercial copper tubing. Indeed, Mr. Smith indicates that in some cases it may be actually wasteful of heat to lag a small-bore copper pipe, both because lagging increases the diameter of the pipe and consequently the area for which heat can be emitted, and also because the lagging may itself have a higher degree of emissivity than that of the copper pipe. This assumes that the copper pipe will remain clean or retain its polish.

Of circulating or distributing systems to taps, the author holds that the "dead-leg" or draw-off branch, without a secondary circulation, is the most efficient. Where a secondary circulation is provided in order to give an instant supply of hot water at taps, the heat-losing surfaces of the circulating pipes are constantly being brought into contact with fresh quantities of hot water. In practice, also, lagging is rarely carried out with full regard to efficiency; pipes are fixed in direct contact with walls and cannot be lagged all round; workmen are apt to neglect the difficult or unseen lengths of pipe. In fact, few pipe-lagging systems are more than 60 per cent. efficient. Mr. Smith suggests the desirability of placing a cut-off valve on the return of the circulation system, so that at night it can be converted into a dead-leg system, thus reducing the loss of heat during the hours when it is not necessary to provide instant hot water.

The simple dead-leg system is clearly only practicable where pipe-runs are short, as in a small house with bath and basin placed together and sink immediately below. In larger buildings it may be practicable to fix more than one heater, each supplying the taps in its immediate vicinity. But no rule can be laid down for this, each building being an individual case to be judged on its own merits.

The author has produced some very interesting comparative figures for different installations. He assumes a house using 60 gallons of water per day, to be heated from 40 degrees to 140 degrees, for 365 days in the year. With a dead-leg system, including all heat losses, he calculates this to give a total electricity consumption of 7,260 units, or 0.33 of a unit per gallon.

He then takes the same hot water demand with 50 feet of uninsulated 1 inch flow and return as secondary circulation. This will give a total power consumption of 13,684 units, or 0.62 of a unit per gallon, which corresponds to an efficiency of 43 per cent.

If all the circulating pipe is lagged to an efficiency of 60 per cent., the total number of units will be 8,953, or 0.49 of a unit per gallon—an overall efficiency of 65 per cent.

If a valve be also fitted to the return pipe and circulation stopped for 12 hours during the night the total consumption is reduced to 7,376 units, or 0.33 units per gallon, giving an overall efficiency of 79 per cent.

The above figures show that reasonably efficient lagging, plus turning off the circulation during the night, will almost halve the electricity bill. It may also be concluded that an electric hot water system requires more care in installation than

is commonly given to domestic plumbing, if it is to give full efficiency. The author points out that the electricity bill represents an exact reckoning of hot water used *plus* heat wasted. It can also be deduced that systems converted from coal-firing are not likely to be efficient. Coal-fired boilers are usually placed principally with regard to flues and easy access for fuel; because of these they may be at long distances from taps. The electric heater, not being affected by these problems, can be placed near the taps and the nearer it is the better.

The same remarks apply to the coal or coke-fired system which has electric immersion heaters fixed in the storage tank, either to boost it when the fire is low or, with combined heating and hot water systems, to deal with the summer hot water consumption entirely. The author devotes a whole chapter to discussion of this special problem.

The question of scale deposit from hard waters is briefly mentioned. The author points out that if the controlling thermostat is fixed to limit the maximum water temperature to 150 degrees, scale formation is reduced, though some waters deposit scale at about 130 degrees. It would seem desirable in each case to have the water analysed so as to take advantage of this exact control possible with electric heaters.

We have dealt with this problem of water heating by electricity at some length because it is rapidly growing in favour on account of its exact control and automatic working. That it presents installation problems peculiar to itself is not often realised and this book by Mr. Smith is the clearest and fullest exposition for architects of those problems so far published.

A companion volume *Warming Buildings by Electricity* by the same author was reviewed by Mr. H. B. Leighton in the JOURNAL of 13 October 1934.

### STEAM HEATING

A second edition of "*Dye on Steam Heating*" has been published. This is a standard textbook and the new edition brings the information right up to date. While in this country direct steam heating is not popular, largely on account of its inflexibility in control—and flexible control is demanded by our climate—it is frequently used as a primary source of heat in large institutions. Such buildings as hospitals, hotels and public baths require steam for cooking, sterilising or laundry work; low-pressure heating and hot water supply can easily be operated from steam boilers by means of calorifiers. In institutions having a widespread plan of a number of separate buildings, such as asylums, workhouses, large hospitals and public schools, a centralised steam plant working with local calorifiers offers considerable economies since steam affords an efficient method of transporting heat over long distances. In New York a centralised steam generating station sells steam to other buildings and many are heated by this means alone.

Steam heating offers advantages, not often realised, to buildings that have a periodic use and require rapid warming up in a short space of time. Steam pipes can be got to full heat more quickly than can hot water pipes. In factories, therefore, where heat losses from the structure are liable to be high, it may be desirable to heat the building only during working hours and the use of steam allows this to be done quickly. Moreover, steam heating installations are not susceptible to frost when not in use.

Where low-pressure exhaust steam is obtainable from engines it clearly forms the cheapest method of obtaining heating, since only 5 per cent. of its heat is converted into mechanical energy. Even when exhaust steam is used for heating boiler feed water there is generally a usable surplus of steam. Exhaust

steam can also be supplemented by live steam from the boilers when its heating capacity is insufficient.

Mr. Dye's book deals with the technicalities of steam heating to a degree that is beyond the scope of the architect. In this brief review we have attempted to draw some general conclusions which will be of use to the latter when he has to decide on methods of heating in a particular building. Nevertheless for those architects interested in the subject, the book does not make too abstruse reading. Its full title is *Steam Heating* by F. W. Dye (E. and F. Spon, 7s. 6d.).

### "SPECIFICATION"

The above title is both general and particular, the latter because it represents the new edition (the thirty-seventh) of the annual publication under that name by the Architectural Press. The word "new" is appropriate because the new editor, Mr. F. R. S. Yorke [A.], has largely remodelled what had been an excellent technical reference book in the days of his predecessor, the late Mr. Frederick Chatterton. While retaining the good features of the old, Mr. Yorke has thoroughly revised the text, incorporating references to many materials and forms of construction that are new and at the same time reducing in bulk notes on those that are obsolescent. The increase in the use of drawings is a good feature; in particular there are two excellent sets illustrating different fire-resisting floor constructions and flat-roof constructions. Finally, new headings in bold type have both improved appearance and made for easier reference. Mr. Yorke has succeeded in the difficult task of improving considerably a publication already good.

We recently reviewed in these pages the Architectural Association's Diary and Technical Reference. The two publications do not really compete with one another, but are complementary; both should be found on the architect's reference bookshelf. The Architect's Technical Reference deals with building technique from a scientific standpoint, while Specification leans more towards the trade and to proprietary materials. The two publications together give the architect about as complete a picture of building technique as is obtainable.

Among the special articles in this volume of Specification is a useful one on Covered Sports Grounds, by Mr. W. S. Grice [F.], and a very thorough one (the author unnamed) on Roads and Footways. Mr. Walter Goodesmith [A.] has also produced a first-class article on Sliding Members and Gear, which includes and expands an article on the same subject published in the R.I.B.A. JOURNAL last year.

The price of Specification is 10s. 6d., and the publishers The Architectural Press.

### STRESSES IN MATERIALS

A second edition of Sealy's *Resistance to Materials* (Chapman and Hall, 18s. 6d.) has been published. This book is a very thorough treatise on the mathematics of structural mechanics and the behaviour of material under stress. The new edition, while containing a certain amount of new material, is largely a recasting of the old with the intention of clarifying exposition for the student.

### TESTING BITUMEN

It is not necessary to do more than mention here the publication of *The Testing of Bituminous Mixtures* by D. C. Broome (Edward Arnold and Co. 15s.). The book is a laboratory handbook for those engaged on testing bituminous compounds for road or building use. There is an additional chapter by R. O. Child on Tests for Roofing Felts.

## A Simple Method of Drawing Volutes

BY ROBERT G. HEAL, B.Arch., A.R.I.B.A.

THE method of drawing volutes which I am about to describe appears not to have been suggested before or, at least, is not generally known to the architectural profession. Its simplicity and, above all, its straightforwardness and accuracy compared with the methods which are usually given in textbooks will, I think, be of interest to draughtsmen. It is primarily a draughtsman's method, the method for a man with a set-square and a pair of compasses; and though there are more accurate ways, mathematically, for calculating volutes, I think I can claim that this is the most accurate way of drawing them. It was the experience of having to rub out about five times a volute which I had drawn from the directions in Gibbs, because it would not fall in the right place on the paper, that made me think that something better could be devised. I was fortunate enough to discover the following method.

### METHODS AT PRESENT IN USE

Before explaining it I will describe shortly the features of the other methods at present in use. First, there is the method given in Gibbs—the usual eighteenth-century method derived from the incomplete instructions in Vitruvius. In this a rectangle eight parts high and seven parts wide is drawn; and in it a circle is inscribed, the diameter of which is one part, with its centre three parts from one side and three and a half from the bottom. In this diagonals are drawn and very carefully divided into minute parts, and quarter circles are drawn from these points as centres. The chief defect in this is the tedious

dividing into parts; a task which is almost impossible to achieve sufficiently accurately to make the curves of the volute start and finish in the right places. Apart from this, it is inaccurate as a volute and is only suitable for one particular purpose—that of an Ionic capital. It could not be adapted to other types of scroll work, such as the

than the foregoing, but relies on an even more laborious system of division into proportional parts.

Another type of method depends on measuring out lines of diminishing lengths and setting them off round a centre, and joining the ends together freehand. Again the difficulties of accurate measurement and the added difficulty of freehand drawing. Another method has been suggested by "R" in which a series of lines at an angle slightly greater than 45 degrees are drawn across the corners of a vertical line crossing a horizontal one. This is shown in Fig. 1. It is then suggested that the points be connected freehand. This method has the same basis in dividing by angles as the new one I am about to describe; but, as it stands, it leaves the position and size of the volute quite unmanageable, and also depends on freehand drawing.

Finally, one can tie one's pencil to a piece of string, wind the string round the convolutions of a whelk-shell and, holding the point of the shell firmly on the paper, draw the pencil round it with the string taut, and in its unwinding a volute will be drawn. An excellent piece of natural geometry which should achieve admirable results with a certain amount of luck, but whelk-shells are hardly part of an ordinary draughtsman's equipment.

### THE PRINCIPLE OF THE NEW METHOD

At first sight, my new method appears rather similar to the old eighteenth-century one; but, in order to see how it differs and to understand the principle on which it works, let us examine Fig. 1.\* In this we see that there is no measuring into parts; the whole figure grows naturally as a series of proportionate triangles and can be extended indefinitely, either to infinitely small or infinitely large dimensions. It can be drawn equally well either inwards or outwards; also, by altering the angle at which the volute lines are drawn, the rate of expansion can be varied.

\* The author, while fully acknowledging the priority of "R.'s" description of this figure, wishes to point out, in justice to himself, that it was only after working out the whole of his method that the similarity of principle in "R.'s" method was brought to his notice.

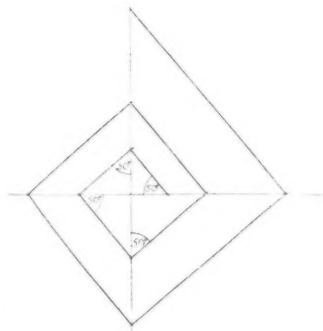


FIG. 1

ornament on top of the Monument of Lysicrates.

There is a similar method called Goldman's, which draws a slightly lob-sided volute. This may have certain advantages on an Ionic cap but has otherwise all the disadvantages of the first. A further variety of this method is given in Pennethorne. It is more accurate

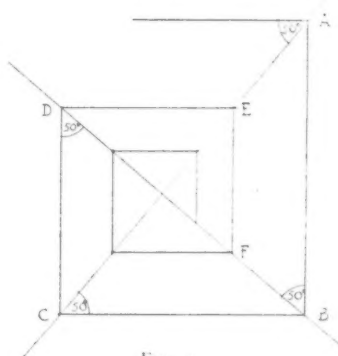


FIG. 2

The problem now is to arrange it in exactly the form, size and position we want, and then to devise a better system of filling in the curves than freehand drawing. The first move is to tilt it over (see Fig. 2) so that the volute lines are vertical and horizontal, and the crossed lines at an angle varying slightly from 45 degrees. This will allow us more easily to measure the sides of the volute. Also we can start from the volute lines and work back to the diagonals. If, for instance, the positions of lines AB, BC, CD, and DE, in Fig. 2, have been fixed, we can immediately draw the diagonals and complete the rest of the figure. By simple geometric constructions we can also set up the diagonals if the positions of the lines AB, BC, CD, and EF are fixed, or AB, CD, DE, and EF. In fact, any four of these lines will fix the size, position and rate of diminution of the volute.

#### THE NEW METHOD DESCRIBED

Let us now apply this and draw the volute of an Ionic capital (see Fig. 3). Suppose we have set out the top line of the volute AB, the top line of the first turn CD, the bottom EF, and the inside edge AE. (I feel it would be out of place here to give directions as to where these lines are drawn; they will vary according to the particular style of Ionic cap aimed at. They are, however, the essential lines from which the volute of any Ionic cap must start, and may be set out or guessed from plates, by measurement, proportions, modules or any other

method.) Then, to find the position of the outside line and the diagonals, do the following little geometrical construction. Take a point exactly half-way between A and C and, with this as centre, strike a circle from A and C and, with this as centre, strike a circle from E. Where this cuts CD draw a vertical line GH. This will then be the outside line of the volute. The diagonals are obtained by connecting GE and CH. These diagonals will cross at right angles.

The rest of the rectangular volute, similar to Fig. 2, can now be set up by drawing horizontal and vertical lines across these, starting from J. They will be JK, KL, LM, etc., and these would go on decreasing indefinitely, but an Ionic cap usually has only three turns. The next problem is to fill in this framework with curved lines. The simplest way, and apparently the way used in antiquity, is with quarter circles. In a volute with a smallish rate of diminution, the variation of this from that of a perfect volute is impossible to detect. To find the centres of the quarter circles carry out the following construction. From G draw a line at 45 degrees, and where this cuts CH is the first centre. A vertical line will give the point of tangency to AG and a horizontal that to GH. The horizontal line also gives the centre for the second quarter circle where it cuts CH. This point will also be at 45 degrees from H. The exact positions of some of the inner centres can be checked in this way to obviate the defects of careless drawing. The third, fourth, fifth, etc., centres, are obtained by drawing horizontal and vertical lines. An enlarged diagram of these is drawn at the side. It will be seen that they form a perfect little rectangular volute in themselves. The quarter circles can then be drawn from these centres, as shown on the diagram.

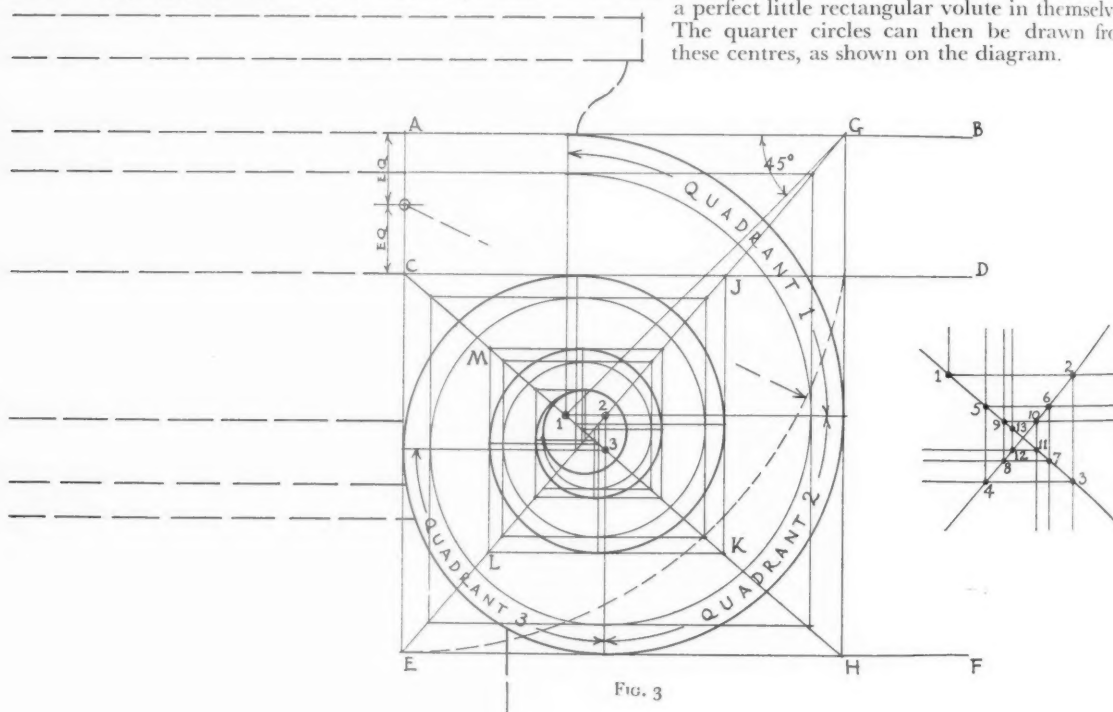


FIG. 3



An Ionic volute is usually finished with an eye, and this should be drawn by merely completing one of the quarter circles. In this diagram it is

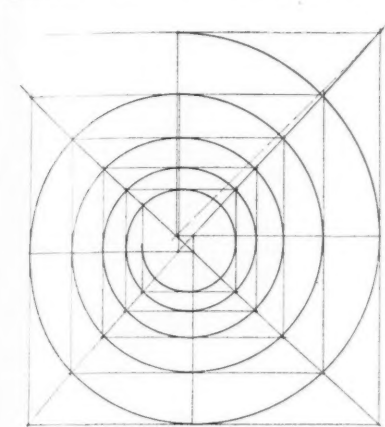


FIG. 4

drawn from centre 13, which is the most usual position. It can, if desirable, be drawn from other quarter circle centres: Nos. 12, 14, 15, 16 and 17 being also suitable. The proportionate size of the eye varies accordingly. It is interesting to note that it should never be drawn in the centre of the volute, that is from the intersection of the diagonal lines. This would mean that the volute would not run smoothly into it. Secondary lines and fillets in the volute can be set out by drawing an inner rectangular volute or volutes on the same diagonal lines and setting out the centres as in the original one.

It has been stressed that this method will draw volutes of any rate of diminution, and as examples I have drawn a volute similar to an Ammonite in Fig. 4 and to a Nautilus shell in Fig. 5. These were both set up by exactly the same method as in Fig. 3, but the comparative positions of the original bounding lines vary.

It has been mentioned that drawing in quarter circles is only an approximation; and though the inaccuracy does not become apparent in ordinary volutes, in Fig. 5 the bumps between the quadrants are quite noticeable. To overcome this, the volute can be drawn in half quadrants by an extension of the original method. To set this up, first draw the rectangular volute and its diagonals as for Fig. 3. This is shown in Fig. 6 in dotted lines. Then cut the corners off the rectangular volute with lines at 45 degrees in such positions that lines *a*, *b*, *c*, and *d*, drawn from these new intersections, will meet in the centre at

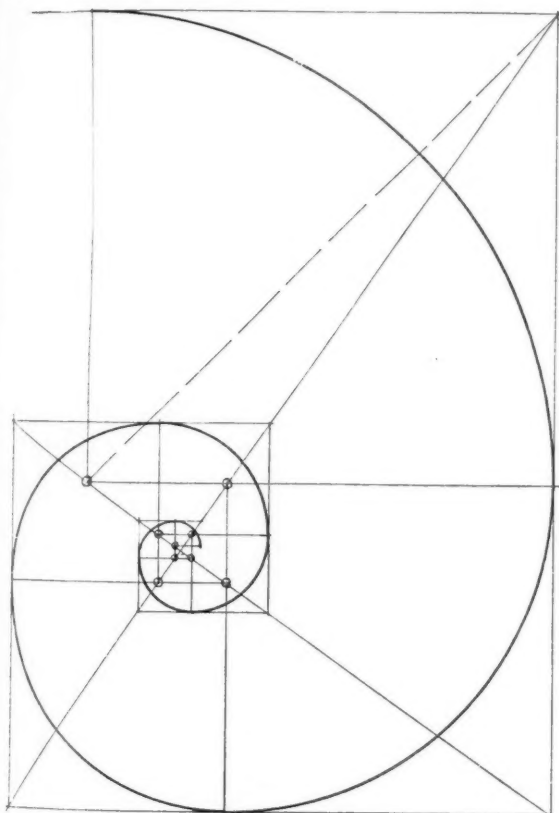


FIG. 5

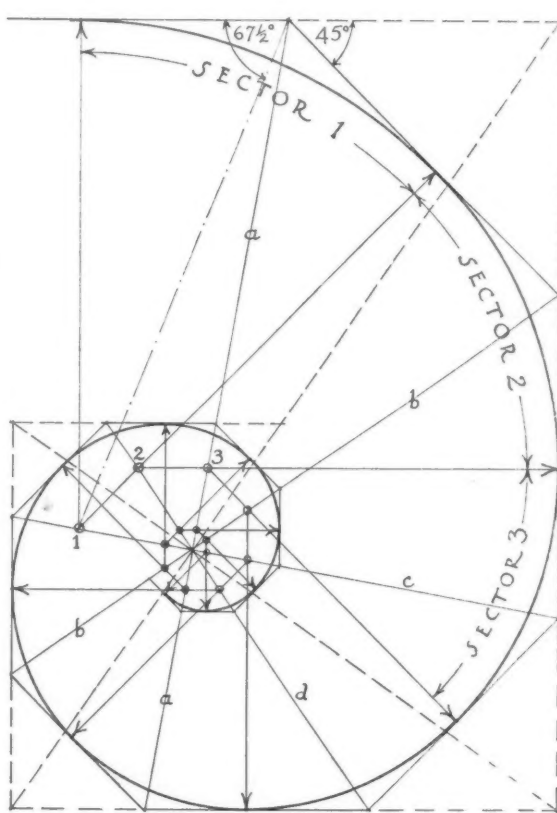


FIG. 6



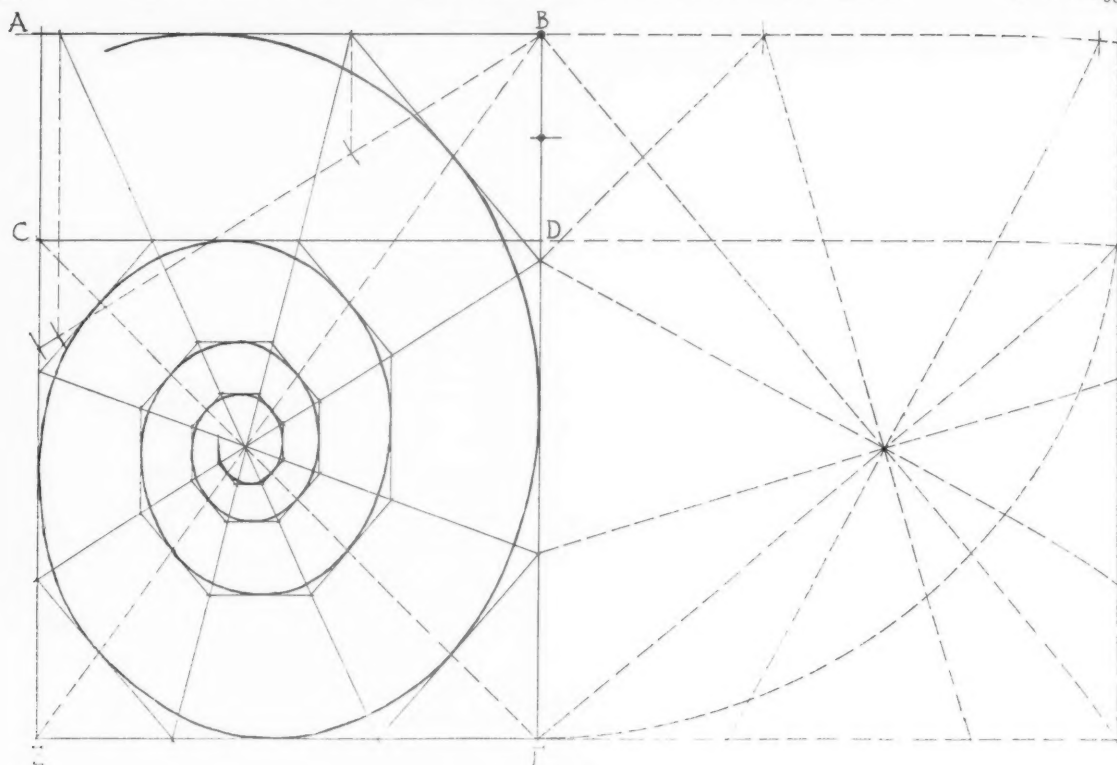


FIG. 7

45 degrees in the same way that the original diagonals met at right angles. There is a very awkward geometrical construction for setting these out, too long to describe here; but the most effective way is, by trial and error, to cut off the top right-hand corner of the rectangular volute so that the lines *a* and *b* intersect at 45 degrees; then with an adjustable set-square to draw *c* and *d* at right angles to them. On this framework an octagonal bounding volute can be set up with horizontal, vertical and 45 degrees lines. To find centres from which to draw half quadrants for this, draw a line at  $67\frac{1}{2}$  degrees from the end of line "*a*" and where this cuts "*c*" will be the first centre. The finding of the other centres and the drawing in of the volute will I think be readily followed from the diagram.

#### ELLIPTICAL VOLUTES

As an extension of this last construction I have shown in Fig. 7 a suggested way of drawing an elliptical volute. An elliptical volute is a rather contorted figure, and the method I am suggesting for drawing it is far from perfect; but as elliptical volutes are sometimes required in console brackets, etc., I tentatively suggest the following. We have previously seen that if four of the five lines bounding a volute are fixed (the top, bottom, the two sides and the line of the first turn), the shape and position

of the volute are fixed and the fifth line can be set up. If, however, we arbitrarily fix all five lines in positions not conforming to a regular volute, the volute we must draw within them will be irregular and can be made elliptical. Thus, suppose we wish to set up a volute within the lines AB, BF, FE, EC, and CD in Fig. 7. First draw out alongside it the main construction lines for drawing a volute in half quadrants similar to Fig. 6. This is shown in dotted lines. Then transfer this proportionately to the rectangle ABFE. The diagonals obviously do not intersect at 45 degrees to each other, but working round them with horizontals, verticals and lines at a set angle (in lieu of 45 degrees as it is in Fig. 6) the outline of the volute is obtained. The set angle is, of course, obtained from the diagonal lines. The volute must then be drawn in free-hand. Some ingenious person may be able to suggest a method for doing this with compasses, but I rather doubt if it can be done with sufficient simplicity.

#### GREEK VOLUTES

To return to the volute of the Ionic capital let us examine the question of the greater accuracy of this method. In Fig. 8 I have drawn out three volutes of the same size, and each with the same diminution in the first turn. The first is by the method given in Gibbs, the second by Gold-

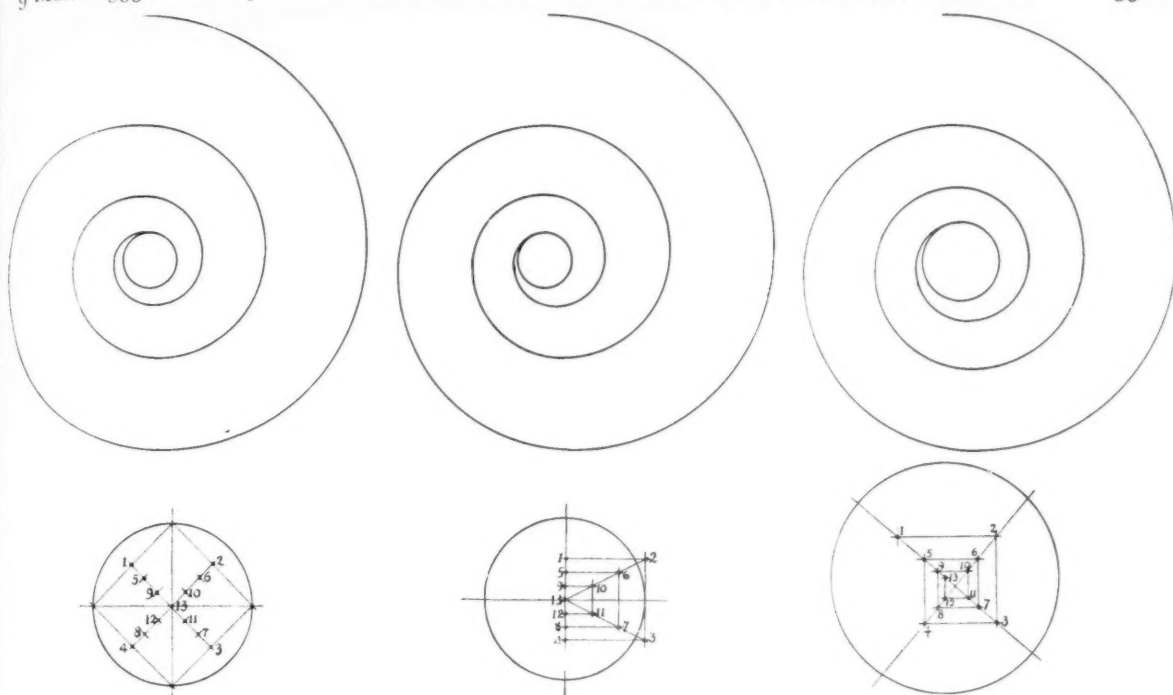


FIG. 8

man's method, and the third by my new method. Underneath, to an enlarged scale, are the centres from which the quarter circles are struck, and the proportionate size and the positions of the eyes. Comparing these three, the last is both visibly and theoretically more accurate. Whereas in the first two the turns do not decrease proportionately, but with greater rapidity towards the centre, in the third all the turns are proportionate.

To judge whether this increased accuracy is to be considered an advantage or a disadvantage æsthetically, I have examined the best drawings I could find of Greek volutes. The result has been to discover a striking resemblance between the best Greek volutes and those obtained by my new method. I have not had the opportunity of measuring any originals, so I cannot say how close the resemblance really is. Even the largest and most accurate looking plates must suffer from possible inaccuracies of measurement from mutilated originals, and from inevitable inaccuracies in being drawn out again. However, taking all this into account, the volutes of the following temples seem to correspond fairly closely:—

1. The Erechtheion.
2. The Propylæa of the Acropolis.
3. The Temple of Nike Apteros.
4. The Temple of Dionysios, Teos.
5. The Temple of Artemis, Magnesia.
6. The Temple at Priene.

Having gone thus far, might I suggest some reasons for supposing that the Greeks may have actually used the method I have been describing. First, we have seen that the results correspond fairly accurately. Next it is noticeable that Greek volutes from different temples do not correspond with each other. This is perfectly understandable supposing they had used this method, for by it all sorts of different looking volutes can be drawn. For instance, the Temple at Priene shows four turns in its volute instead of the usual three, a very simple variation to make by my method. Another point is that the Greek volutes have been supposed to be irregular in shape when measurements have been taken from the eye as the centre. I suggest that investigation might show the positions of the eyes to be irregular (as they will be if drawn by my method) and not the shape of the volute. Finally, let us turn to Vitruvius. After giving many elaborate directions for determining the size and position of an Ionic volute he tells us that it should be drawn in quarter circles from points arranged in the centre. Unfortunately his directions for finding these points are so vague that they are quite useless, and succeeding architects have been left to guess how they should be found. However, he does definitely state that the method of drawing them with quarter circles was used in antiquity. This being so, is it not likely that they used the method I have been describing, which is in the spirit of Euclidian geometry and is capable of a degree of accuracy which would satisfy the Greek mind?

## Book Reviews

### ENGLISH ROMANESQUE ARCHITECTURE

ENGLISH ROMANESQUE ARCHITECTURE AFTER THE CONQUEST.  
By A. W. Clapham, F.S.A. xvi+180 pp. 47 plates and 43 illustrations in the text. Oxford: The Clarendon Press, 1934. 30s.

Mr. Clapham's former volume on pre-conquest Romanesque, to which this is a companion, won instant recognition as the most authoritative work on the period that had been published. This volume, which deals with the Norman churches in England after the Conquest, is not less valuable, and although the subject has received more attention than has been given to Saxon architecture, the author easily outruns his predecessors, and gives us for the first time a clear and connected account of the period.

In some quarters it is the fashion at the moment to decry the study of the buildings of the past that have made the art of architecture famous. But only those who are over-sensitively time-conscious are afraid of acquiring knowledge of achievements that must remain the pride not only of our country but of the human race. The Normans were mighty builders, bold in planning and in artifice, and they covered England with churches great and small, secular and monastic, beside the numerous buildings of a military or domestic character. Indeed it is almost incredible that with so small a population the country was capable of a production so vast. It affords some criterion of the vitality of architecture in the eleventh and twelfth centuries. Such a period had the great advantage of a nascent energy, encountering and solving problems made difficult by its own ambition; it had little time to waste discussing theories, for there was too much practical work to get done. The result was a unification of method and style, the gift of the very intensity of the aim.

Some of the distaste for the study of historical architecture is no doubt due, and rightly due, to the faults of writers who present a story based on imperfect knowledge, and coloured by much false sentiment. Such great enterprises as the Normans set themselves can only be justly described by an author thoroughly versed in the whole range of the building activity of the period, and capable of a clear analysis of its planning, structure and enrichment. It is because no one is so qualified as Mr. Clapham, by actual acquaintance with the buildings, and an innate sense for differentiating the essential from the accidental, that this book is so trustworthy and adequate a guide.

If any criticism were offered, it would be that the author's attitude is so scientific and detached that his descriptions lack colour, and even light and shade. But this attitude is intentional, and while his self-denial saves the student from distraction, the plentiful and finely-produced illustrations do not allow us to forget the fresh beauty of the builder's craft. In the preface to his earlier volume Mr. Clapham allowed himself a few sentences on the aesthetic appeal of Romanesque architecture, and suggested that it might be due to its immaturity. "The human mind craves," he wrote, "even in its architecture some reflection of human imperfection, and the latent historical sense requires an art which mirrors the life and thought of its creators." There is undeniable truth in this, but it would be interesting to probe deeper into the causes

of the instant pleasure which the buildings of the twelfth century give to so many people at the present time. There is surely something strangely in common between us of to-day and the builders who, while unknowingly they prepared the ground for the harvest of Gothic architecture, yet brought to birth a style which, had it gone no further, could still capture so much of that mystery which is the creative spirit's victory over formless material.

Mr. Clapham's aim is, however, not to seek answers to aesthetic conundrums. The student will find careful and detailed comparisons of plans, thorough investigation of sources and development, and precise information as to dates. The plans of parish churches are touched upon, and many of their features and fittings find a place, but in the main, the book contains the story of the greater building of the period, beginning with a survey of the work immediately following the Conquest, and proceeding through the influence of the reformed religious orders to the later part of the twelfth century. Masonry, mouldings, sculpture, decoration and fittings are the subjects of the concluding chapters. Throughout the book there is strict impartiality, a close grip on the essential facts, and a comprehensiveness born of a very wide range of observation. The two volumes, by their scientific treatment, are a genuine contribution to exact knowledge, and will set a standard for investigation in similar fields. They are, moreover, beautiful examples of the book production of the Oxford Press—type, paper, binding and illustrations being all that can be desired.

WALTER GODFREY [F.]

### A VISION OF A NEW BRITAIN

HUNDRED NEW TOWNS FOR BRITAIN. By J47485. London: Simpkin Marshall, Ltd. 3s. 6d.

This pamphlet is prefaced by a reprint of a letter to the editor of *The Times*, signed by the President of the British Legion, the President of the Royal Society, Lord Sempill, Professor Adshead, Sir Robert Hadfield, the Rev. "Dick" Sheppard, and others who, after briefly outlining the Hundred New Towns Scheme, recommended it as "worthy of the fullest investigation and discussion." The project was originally proposed by an architect, who has chosen to sign himself by the official number allocated to him during the war. He has now elaborated his idea in a well-produced pamphlet of foolscap size. The first part deals with the political and economic aspect of the problem, while the second part consists of explanatory notes concerning 26 illustrations of town-planning and housing, no fewer than 15 of which are colour plates.

It is understood that a number of ex-Service men are espousing the project, which indeed appeals also to many people in this country who believe that the moment is now ripe for a great experiment in national planning. But to architects, above all others, the scheme should be of especial interest because the national plan here advocated, although it is primarily directed to the raising of the standard of life of the British people and to the reorganisation of industry, has been crystallised into an architectural shape. The author is concerned to show in the first instance that the scheme is physically

and practically possible. The labour and materials required for carrying it out are available and the stream of factory migration, greatly stimulated by the electric grid, is sufficient in a normal post-war year to supply the industrial nucleus for ten towns of 50,000 people. Thus the hundred towns would represent a ten years' programme of development. As it is generally acknowledged that at least 2,000,000 new houses are needed, the hundred new towns of the size contemplated do not by any means represent an extravagant programme of building, for they would only accommodate half the new dwellings which are required, leaving the other half to be provided in the existing towns for the benefit of those who for various reasons cannot migrate from these latter. Furthermore, the author points out that these new towns would collectively occupy less than  $\frac{1}{20}$  of the area of Great Britain.

To architects the prospect of designing a hundred brand-new towns, each with its public buildings, its industrial, commercial and recreational quarters all harmoniously inter-related, is too heavenly to be considered within the bounds of practical possibility. But J47485 says that it is practical, and unless we start something of the kind in the near future, very serious social and political consequences will ensue. "How is it to be paid for?" it may be asked. The author maintains that buildings can safely be financed by a method which would not be applicable in the case of other and more perishable commodities or products of manufacture. The pages of the R.I.B.A. JOURNAL are not a suitable medium for embarking on a discussion upon the question of monetary reform, but suffice it to say that the financial proposals of J47485 are of a kind which are being seriously considered by a growing number of responsible people in all parties.

I have left little space to comment upon the illustrative section of this pamphlet. The new towns envisaged by J47485 are not after the model of the garden city, nor do they owe anything to the inspiration of Le Corbusier. Yet, while they show marked originality, they are extremely logical. They seem to express a rare quality which has been described as "brilliant common sense." It is difficult to conceive how either traditionalist or modernist can fail to appreciate these designs for town plans and the charming residential quadrangles and terraces illustrated in the book.

The author has not forgotten that State housing for the most part is controlled by bureaucrats who cannot fulfil their trust to the public unless they enforce an hygienic standard. Realising the inconsistency of a rule which permits anything up to 200 dwellings to the acre in the case of tenements, and forbids a higher density than 12 in the case of houses, J47485 has for the first time proposed a reasonable yet consistent standard applicable to both forms of building. This recommendation could with great advantage be adopted at once without waiting for the 100 towns.

The argument concludes with two admirable statements from former slum-dwellers, one of whom now lives in a dormitory suburb and the other in a recently erected block of "model" tenements. It would appear that neither of these methods of housing is altogether popular among those best qualified to judge them.

The pamphlet, *A Hundred New Towns for Britain*, has a creative vigour and an uncompromising directness not usually to be found in books about housing and town planning. Architects will be well advised to study it.

EDWIN WILLIAMS [F.]

## Accessions to the Library

1934-1935—IV

INCORPORATING NOTES ON RECENT PURCHASES

(These Notes are published without prejudice to a further and more detailed criticism.)

Lists of all books, pamphlets, drawings and photographs presented to, or purchased by, the Library are published periodically. It is suggested that members who wish to be in close touch with the development of the Library should make a point of retaining these lists for reference.

Books presented by Publisher or Author marked

R.

Books purchased marked

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\* Books of which one copy at least is in the Loan Library.

### ARCHITECTURE

PALLADIO (ANDREA)

L'Architettura di A. P. divisa in quattro libri, etc.

13<sup>o</sup>. 134 pp. incl. plates. Venetia: M. A. Brogiollo. 1642.

Presented by Mr. H. W. Keef.

SPON, publ.

Spon's Practical builders' pocket-book. Clyde Young, ed.

6 ed. 6". Lond.: Spon. 1935. P.

### PRESERVATION

INTERNATIONAL INSTITUTE OF INTELLECTUAL COOPERATION

La Conservation des monuments d'art et d'histoire. [With English contributions.]

9 $\frac{1}{2}$ " x 7 $\frac{1}{4}$ ". 490 pp. + iv plates. [Paris:] Office International des Musées [1933]. Presented by the Office International des Musées, through Mr. A. W. Clapham, F.S.A.

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TURNER (PHILIP J.)

Lavenham. A small Tudor town in East Anglia. (From the Canadian Geographical Journal.)

extract. 10 $\frac{1}{4}$ ". [193-]. Presented by the Author [F.].

TOWNSEND (H. A.)

Architectural evolution.

7 $\frac{1}{4}$ ". 138 pp. Lond.: A. H. Stockwell. 1934. R.

STRATTON (ARTHUR)

Introductory handbook to the styles of English architecture. Part 1: the Middle Ages.

Batsford. 1934. 1s. 6d. R.

The second edition of this useful work.

FYFE (THEODORE)

[Hellenistic architecture.] (H. L. Florence Bursary Report, 1932-33.)

typescript, 14 $\frac{1}{2}$ ", and Album of Ph. prints. 1934.

Presented by the author [F.].

LOUKOMSKI (G. K.)

Jules Romain. (Les Grands architectes, series.)

9" x 6 $\frac{1}{2}$ ". 117 pp. + front. and ciii plates. With bibliog. Paris: A. Vincent. 1932. (£1 8s. 6d.) P.

## LOUKOMSKI (G. K.)

Andrea Palladio. (Les Grands architectes, series.)  
9" x 6½". 120 pp. + front. and cxxxii plates. With bibliog.  
Paris: A. Vincent. 1927. (£1 8s. 6d.) P.

## PASCOE (PAUL)

The Study of the early buildings in the Canterbury settlement of  
New Zealand, etc. (Essay Medal, 1935, Hon. Mention.)  
dupl. typescript and Photos., etc. [1934.] Presented.

## DRAWING

## GRIFFITH (C. L. T.)

Perspective and projection drawing for engineering draughtsmen.  
(Society of Engineers.) With MS. appx. [rule and compass method].  
8½". (23) + [2] pp. [Lond.] 1932.

## PROFESSIONAL PRACTICE

## SPON. publ.

Architects' and builders' pocket price book. 1935. Clyde Young, ed.  
1935. R.

## BUILDING TYPES

## (CIVIL)

## SYMONDS (GUY)

The Home Office Manual of safety requirements in theatres and  
toher places of public entertainment. (Building Centre.)  
pam. dupl. typescript. Lond. [1935.] R.

## BROWN (G. H.)

London's river bridges. Thesis for R.I.B.A. Final Examination,  
December.) typescript. 13". 1934.

## (ECCLESIASTICAL)

## TRAQUAIR (RAMSAY) and NEILSON (G. A.)

The Old church of St. Charles de Lachenaie. (McGill University  
Pubns. Series xiii (Art and architecture) No. 38.)  
pam. 12" x 9½". Montreal: RI. Architectural Inst. of Canada.  
1934. R.

## DRUMMOND (A. L.)

The Church architecture of Protestantism.  
9½". xviii + 342 pp. and xxiv plates. With bibliog. Edinburgh:  
T. and T. Clark. 1934. 15s. P.

## (EDUCATIONAL)

## ARCHITECTURE D'AUJOURD'HUI, publ.

\*Groupe scolaire . . . à Villejuif . . . André Lurçat, architecte.  
ob. 12½" x 9½". 119 pp., chiefly plates. [Paris:] L'Arch. d'Aujourd'hui.  
[1933.] (5s. P. and presented by Mr. Howard Robertson [F.]  
as supplement to his Godwin Bursary report.

## (DOMESTIC)

## COUNCIL FOR RESEARCH ON HOUSING CONSTRUCTION

\*Housing standards and statistics. The second report, etc.  
11½" x 8½". 80 pp. Lond.: P. S. King. 1935. 7s. 6d.  
Presented by the Council (2).

## CENSUS OF ENGLAND AND WALES, 1931

Housing. Report and tables.  
13½". Lond.: H.M. Stationery Office. 1935. 6s. 6d. P.

## PRACTICAL BUILDING, publ.

Modern bungalows. L. H. James, ed. (Practical plans, No. 3.)  
pam. 11" x 8½". 44 pp. Lond.: Practical Building Pubg. Co. 1935.  
2s. 6d. P.

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## CANTERBURY: CATHEDRAL

Cathedral church of Christ, Canterbury. Notes on the old glass.  
pam. 7½". [Canterbury.] 1931. Presented.

## MARTYN (H. H.) and Co., Ltd.

Decorative work at the Guildhall, Swansea.—Architects: Ivor  
Jones and Percy Thomas, etc.  
Album, 17½" x 15½", of mounted photos. and prelim. text.  
[Cheltenham. 1935.] Presented by the firm.

## WHITTICK (ARNOLD)

\*Symbols for designers, etc.  
9½". xvi + 168 pp. + front. and 15 plates. Lond.: Crosby Lockwood.  
1935. 12s. 6d. R. & P.

## ALLIED ARTS

## GLOAG (JOHN)

Industrial art explained.  
7½". 192 pp. + xvi pls. Lond.: Geo. Allen and Unwin. 1934. 5s. R.

## BOARD OF EDUCATION

Educational pamphlets:  
No. 102. (Industry series, No. 14.) Industry and art education on  
the continent.  
7½". 135 pp. Lond.: H.M. Stationery Office. 1934. R.

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Medieval France. A companion to French studies. (By various  
authors.) [Chapter on Architecture by Sir Thomas G. Jackson.]  
1a. 80. Cambridge. 1922.

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Modern France. A companion to French studies.  
1a. 80. Cambridge. 1922.

## MASKELL (ALFRED)

Wood Sculpture. (The Connoisseur's Library.)  
10". xxxii + 426 pp. + front. and lix plates. With bibliog. Lond.:  
Methuen. 1911. (15s., remainderd.) P.

## SCHNECK (A. G.)

Der Stuhl. (Das Möbel als gebrauchsggegenstand.)  
2nd ed. 11½" x 9". 60 pp. incl. plates. Stuttgart: J. Hoffmann. [1930.]  
12s. P.

## WASHINGTON: SMITHSONIAN INSTITUTION—FREER GALLERY OF ART

A Descriptive and illustrated catalogue of miniature paintings of  
the Jaina Kalpasūtra, &c. By W. Norman Brown. Oriental  
Studies, No. 2.)  
14". v + 66 pp. and 45 plates. Washington: Smithsonian Instn.  
1934. R.

## ARCHAEOLOGY

## LOWTHER (A. W. G.)

A Description of the model of Roman London. [With plan.]  
pam. 6". Lond.: All Hallows Barking Church. [1933.] 3d. Presented.

## EXETER: EXETER EXCAVATION COMMITTEE

Report on the underground passages in Exeter (from Proc. Devon  
Archaeol. Exploration Society).  
10" x 7½". (10) pp. + (3) pls. + 6 folding plates (including maps).  
[Exeter. 1933.] R.

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## MATERIALS

## BOULTON (E. H. B.)

Some constructional and decorative timbers. (Building Centre.)  
dupl. typescript. 13". [London. 1935.] R.

## BRITISH STANDARDS INSTITUTION

B—S— specification of grading for plywood veneered etc.  
(No. 588—1935.) 1935. R.

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No. 594. B.S. specification for rolled asphalt. Fluxed lake asphalt  
and asphaltic bitumen.

No. 595. B.S. specification for rolled asphalt. Fluxed natural  
asphalt and asphaltic bitumen.  
2 pams. 8½". London. 1935. 5s. each. R.

## BRITISH STANDARDS INSTITUTION

No. 596. B.S. specification for mastic asphalt surfacing. Fluxed  
lake asphalt and asphaltic bitumen.

No. 597. B.S. specification for mastic asphalt surfacing. Fluxed  
natural asphalt and asphaltic bitumen.  
2 pams. 8½". London. 1935. 2s. each. R.

## CONCRETE YEAR BOOK

The Concrete Year Book, 1935. Oscar Faber and H. L. Childe, eds.  
8½". Lond.: Concrete Pubns. Ltd. 1935. P.

## SLATER (I. G.)

Metallic rust-proof finishes for architectural iron-work. (Building  
Centre.)  
dupl. typescript. 13". [London. 1935.] R.



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SHARMAN (R. P.)

The External walling to steel and reinforced concrete framed structures. (Thesis for R.I.B.A. Final Examination, December.) typescript. 13". 1934.

## SANITARY SCIENCE AND EQUIPMENT

MECHANICAL WORLD, *publ.*

The "Mechanical World" Electrical Year Book. 1935. 6". Lond. 1935. P.

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The Technique of lighting. (Third Architects' Conference. Joint Committee of Architects and E.L.M.A. Lighting Service Bureau.) pam. dupl. typescript. 13". [Lond. 1935.] R.

DUNCAN (R. A.)

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SIDDALL (G.)

Methods of heating buildings. (Thesis for R.I.B.A. Final Examination, December.) typescript. 13". 1934.

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GLOVER (C. W.)

The Sound insulation of reinforced concrete buildings. (Synopsis.) Reinforced Concrete Association.) proofs. 11 1/4". Lond. 1935. Presented by the Association.

## ENGINEERING

GATWARD (P. J.)

Diving for water, oil and coal. (Building Centre.) pam. dupl. typescript. 13". Lond. [1935.] R.

## TOPOGRAPHY

BELT-JAMES (N. G.)

The Growth of Stuart London. (London and Middlesex Archaeological Society.) 4 1/4". 356 pp. + numerous plates. With bibliog. Lond.: Geo. Allen and Unwin. 1935. £1 5s. P.

HELLENIC TRAVELLERS' CLUB

Proceedings. 1934. (Containing article: Earlier Hellenic Travellers. By S. D. Kitson.) 7 1/4". 168 pp. + plates [Lond. 1935.] Presented by the Hellenic Travellers' Club.

BUSHELL (J. J.)

B—s Picturesque Bermuda handbook . . . 1933. 24th ed. 7 1/8". var. pp. + plates + maps. Devonshire, Bermuda: Bushell. 1933. Presented by Mr. Lawrence H. Smart [L.].

## TOWN AND COUNTRY PLANNING

MINISTRY OF HEALTH

\*Town and country planning. Model clauses for use in the preparation of schemes (with notes). 13". Lond.: H.M. Stationery Office. 1935. 2s. Presented by the Ministry (2).

BASSETT (E. M.) and others

Model laws for planning cities, countries, and states, etc. (Harvard City Planning Studies, vii.) 9 1/4" x 6 1/4". viii + 137 pp. Camb., U.S.A.: Harvard U.P. 1935. (10s. 6d.) P.

GHODI (CESARE)

La Città moderna. 10 3/4" x 8 3/4". xii + 307 pp. Milan: U. Hoepli. 1935. (£1 13s.) P.

HAIS (HARALD)

Fra Christiania til Stor-Øslo et forslag til generalplan for Oslo. 4 1/4" x 7 1/8". 240 pp. + folding maps. Oslo: H. Aschehoug. 1929. (10s.) Presented by Mr. Grahame B. Tubbs [A.].

CAUCHON (NOULAN) AND KITCHEN (J. M.)

\*Hexagonal planning and housing. (From Proc. Nat. Housing Assn.) pam. 9". 22 pp. Philadelphia: Nat. Housing Assn. 1929. Presented by the Author.

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R.I.B.A.

Exhibition of books and drawings from the Library . . . 1935. pam. 8 1/4". Lond. [1935.]

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## YEAR BOOK OF EDUCATION

—, 1935. (Pubd. in association with Univ. Lond. Institute of Education.) [1935.] (Including: Robertson (Howard). Architectural education (p. 631).)

## JUNIOR INSTITUTION OF ENGINEERS

Journal and record of transactions. xlv. 1933-34. (Including: Cooper (W. F.). Force of the wind on engineering structures. Rickards (G. V.). Reproduction of engineering and architectural plans).

## BIRMINGHAM CIVIC SOCIETY

Report. October 1931-1932. [193.]

## CARDIFF CIVIC SOCIETY

First annual report. 1933-4. pam. 8 1/4". [1934.]

## PALESTINE: DEPARTMENT OF ANTIQUITIES

The Quarterly. Index to vol. iii. 1934. Vol. iv. Nos. 3, 4. 1934-1935. (Including: Baramki (D. C.). Recent discoveries of Byzantine remains in Palestine. (In No. 3).)

## MANUSCRIPTS

3 accounts. Signed: Robt Adam (1768); Benj. Watson (1779); Thomas Scheemakers (1779).

3 MSS. 1768, —79, —79. P. (18s.).

## DRAWINGS

WEBB (SIR ASTON)

Buckingham Palace: north-east front. As existing (Edward Blore, architect) and as proposed (Sir Aston Webb's original design). 2 sheets. Pencil D., tinted. 1912.

STEVENS (ALFRED)

Sketches. 49 sheets on 44. Pencil, ink, and colour D. (Some mounted.) [18—.] House in Rome: sketch. Pencil D. [18—.] Rome: Vatican—Loggia. Colour sketches. 25 sheets. Colour D. [18—.] Presented by Mr. Sigismund Goetze [Hon. A.].

DRAWINGS (VARIOUS)

London: Great Burlington Street—Gen. Wade's house. Ext.—Oakham: Oakham Castle. Int.—Houses: Designs for, Hong Kong and Auckland, N.Z.—7 sheets. D. v.d. Presented by Mr. Tapley-Soper.

BARRY (SIR CHARLES), PUGIN (A. W. N.), and MURRAY (JAMES) Works. (Houses of Parliament, Bridgewater House, etc.) Large-scale working drawings. Bound in 3 vols. fo. [18—.]

Sketches, back title. 2 vols. Vol. i: Mostly designs, including Treasury, Whitehall, etc. Vol. ii: Chiefly mediaeval detail, measured drawings. 2 vols. 40. [18—.] Presented by the Misses Murray.

SKETCH-BOOK

[Some drawings dated 1683, one initialed N. H. Probably Nicholas Hawksmoor's.] On fly-leaf: Ex. Coll. Dom. Chr. Wren. Mil. [possibly Wren's MS.]. 1 vol. D. [168—.] Presented by Mrs. R. J. Wilson [A.].

PHOTOGRAPHS AND PRINTS

About 73 sheets. Chiefly Italy. Photos. and Engr. (plates from bks.) [18—.]

MURRAY (JAMES)

Designs for town houses. 18 sheets. D. [18—.] Figure drawings. 4 sheets. D. [18—.] Westminster Abbey: west door: Henry VII chapel stalls: Henry V chantry, gate. 4 sheets. D. [18—.]

BLAGROVE (G. H.)

Stone dome and drum. (Grissell Medal, 1879.) 3 sheets. D. [18—.] Presented by the Misses Murray.

## Drawing Instruments

Case of 18 early architects' instruments. One dated 1589. Dividers (triple). Dated 1688. Presented by Mr. Sigismund Goetze [Hon. A.].

## Correspondence

### REFERENCES TO SCULPTORS IN WREN SOCIETY'S VOLUME XI

25 *The Bolttons Studios,*  
*Redcliffe Road,*  
*S.W.10*

To the Editor, JOURNAL, R.I.B.A.,—

SIR,—

Will you permit a few comments by way of annotation on the subjects dealt with in the large and sumptuous volume just produced by the Wren Society. It is not mine to comment on Wren's plans for the restoration and completion of Westminster Abbey save by way of congratulation that they are now available to students, or to give a summary of the contents; rather I hope to supplement what is there said; and for that reason, not because I regard the interesting account of him as the most important material in the book, I begin with Sir William Wilson, whose parentage, history and romantic marriage are at last treated in detail.

First we may take his estimate of £125 for his statue of Sir John Moore for Appleby School (Plate LV), as to which the younger Moore "enquired of 2 or 3 Masons." Wilson's charge, as he justly says, was preposterous. £70 to £90 was the figure they quoted, and this is borne out by information as to the cost of the statues on the Second Royal Exchange and elsewhere, by first-rate London men. Quellin charged £80 for the Sir John Cutler for the Royal College of Physicians in 1682; £60 for the brilliant Charles II on the Exchange, and the same for the Henry VI there; and as Jasper Latham was paid only £15 on account for the superb statue of Captain Maples at the Mile-End Almshouses in 1682, we may be certain that the whole amount was equally modest; this explains why those responsible for Appleby School found Sir William's charges high and himself overbearing. Even Gibbons's statue of Sir John Moore at Christ's Hospital, cost only £90 (*Annals of Christ's Hospital. 1901*), and his Archbishop Lamplugh at York Minster, setting and all, only £100.

It is clear that to the next century, Wilson was primarily the architect of Warwick Church. Vertue, in his unpublished *Journal of a Tour with Lord Oxford in 1737*, speaks of "Sir William Wilson, Architect, and Builder of the Church and Noble Tower or steeple, and other Buildings in Warwick—about 1704. Smith, the builder of his house in Warwick over against the Sessions House, a Noble Front"; and Pennant, *Journey from Chester to London*, p. 106, goes on the same lines, rather cynically summing up his career as that of "a mason from *Sutton Coldfield*, who, after marrying a rich wife, arrived at the dignity of Knighthood." There is, however, evidence of more works by him than those here given. The statue of Sir John Cloberry in Winchester Cathedral, shows that worthy, a General in Monk's army and a notable citizen of Winchester, and what Dr. Milner calls

his "inelegant statue" stands in a black and white marble setting under a rounded pediment with arms above, and flags and weapons of war ranged round it. The stiff attitude and gesture, the unyielding coat, the long wig, the survival of an earlier tradition shown in the odd stage helmet, are typical of his work; the cravat suggests that on the Pudsey monument, over the making of which, as one story has it, he met and wooed the wearer's widow; the sash suggests the arrangement on the earlier and cruder Charles II at Lichfield.

There are at Rainham, Kent, two monuments of unexampled oddity, those of the Hon. George Tufton (d. 1670), seated in a suit of the most fantastic armour, with a helmet like Sir John Cloberry's, made yet more stately by a colossal plume, and that of his brother Nicholas, the third Earl of Thanet, who died in 1679. There he straddles in a corner, in peer's robes, his right hand pointing stiffly down; the whole thing looks like a parody of one of the Royal figures on the second Exchange, and its lifeless pomposity can only be matched in Sir John Cloberry. I long hesitated to ascribe them to Wilson, as a connection between the Warwickshire sculptor and this corner of Kent seemed too far-fetched; but in the end a study of the family pedigree explained the matter. Nicholas, the third Earl, died, as I have said, in 1679; he was succeeded by his brother John, the fourth Earl, who died unmarried in 1680; he by his brother Richard, the fifth Earl, who died unmarried in 1684, when yet another brother, Thomas, the sixth Earl, succeeded to the title, and his wife was the Lady Catherine Cavendish, daughter and co-heir of Henry, Duke of Newcastle. Now it was this Duke who finished Nottingham Castle, begun by his brother William in 1679, and who commissioned Sir William Wilson to execute the equestrian statue of Duke William, which formerly adorned the Castle front. There are two drawings of this statue *in situ*, by the way, one dated 1680, in the volume of drawings by Hawksmoor just presented to the R.I.B.A. If Duke Henry were employing Wilson in one place, what more natural than that he should employ him in another? These statues have every quality which differentiates Wilson's work from that of other sculptors of the time; the scrolls of their cartouche tablets resemble those of authenticated works of the sculptor; and they can, I think, safely be added to the list of his works; certainly they are among the oddest productions of the English chisel.

I hope that the details which follow will not be too wearisome; but as the famous and illuminating entry from Ashmole's Diary relating to the Masonic dinner at the Half-Moon tavern on 10 March 1681-2, is quoted because Sir William was one of the guests, it seems a pity that it should not be fully annotated, since Sir William was in uncommonly good professional company.

First, so far from it being doubtful, as stated on p. 109, whether Thomas Shadbolt were a mason, he was actually Renter Warden of the Masons' Company in 1662, Upper Warden in 1666-7, and Master in 1668-9. Of Captain Borthwick—he is by no means the only sculptor to hold that rank in the Train Bands—I can say nothing, but William Woodman was Renter Warden in 1702, Upper Warden 1703, and Master in 1708, besides being the author of a series of signed monuments in Westminster Abbey and elsewhere which are not only wholly different from one another, but, in every case but one, are copies of designs by other sculptors differing widely from one another and the only original work of the lot is the last, a fact which makes his copying tendencies all the more bewildering. William Grey was Renter Warden in 1691-2, Upper Warden in 1693, and if I can add nothing as to Samuel Taylor, William Wise, Renter Warden in 1695, Upper Warden 1696, and Master 1703, was almost certainly the son or brother of Thomas Wise, Master in 1681 and 1698, and one of Wren's assistants at St. Paul's and on several of the City Churches, and successor of Joshua Marshall as Master Mason to the Crown on June 6, 1678. Thomas Shorthose, another of Wren's master masons, was Upper Warden in 1662, Master 1664-5; and Nicholas Young, Renter Warden in 1674, Upper Warden 1679, and Master 1682, actually appears in this volume (p. 72) as the mason called in to repair the North Cloister of Christ's Hospital. John Shorthose, Thomas's son presumably, was Renter Warden in 1676, Upper Warden 1681, Master 1686; William "Hamon"—Hammond—was Upper Warden in 1683; John Thompson Renter Warden in 1683, 4 and 5, Upper Warden 1686, and Master 1690; and William Stanton Upper Warden in 1680, 4 and 5, Renter Warden (an inversion of the usual order) 1681, and Master 1688 and 9. Part of his immense achievement as a sculptor is dealt with in *The Stanton of Holborn*;\* where, however, it is not stated that he was the builder of Belton; and it is interesting to find in this present volume that his son Edward was the mason employed on the Abbey; his interest in that building is shown by his being an original subscriber to Dent's *Westminster Abbey*; his partner, at a later date, Christopher Horsnaile, who like himself afterwards held office in the Masons' Company, was the mason who built the New Dormitory of Westminster School. The "Mr. Tufnell," whose wharf was borrowed for the restoration of the Abbey under Wren, as shown by the Fabrick Orders for 1699-1716 (p. 27 of this volume), was a distinguished sculptor; "Sp Tufnell West fecit" is the inscription on a fine architectural monument to Bishop Hooper in the Cloisters at Wells, and several other works, including three admirable busts, have been noted elsewhere.

As for the [Jasper] Mayne who carved the ornament for the niche of Sir W. Wilson's statue of Sir John Moore, he was paid £57 10s., with Thomas Strong, for carving the front of St. Stephen's, Walbrook, and so again belonged to the Wren circle.

In the account of the new buildings of Christ's Hospital we find other familiar names. John Bumpstead, carver (p. 69), employed on the Mathematical School in 1684, was probably a son of the Stephen Bumpstead who held office in the Masons' Company in 1676 and 8. Mr. Cartwright, consulted over the same building (p. 68), was a more important person. Upper Warden in 1671, Master 1673 and '94, he was employed as mason on the second Royal Exchange on the death of Jarman,

where his work was so excellent that he received a gift of plate from the Gresham Committee; he designed the Cornhill front of that building, and has left several fine monuments, the most important, unfortunately, not discovered in time to be recorded with others in my *Temple Church Monuments* (1933), a large and important one to Sir John Lewis (d. 1677) at Ladsham. Cartwright's son of the same name, who was Renter Warden in 1704, Upper Warden in 1709, and Master 1710, followed his father's footsteps, though only one monument by him has yet been noted; but in 1684 he was hardly old enough to be the Mr. Cartwright consulted by the Christ's Hospital authorities, so we may take it that the elder Thomas is intended. The Mr. Davis who carved the "Neech" for Sir John Moore's statue at Appleby School (p. 73), for which Mayne did the ornament, is the T. Davies or Davis who was apparently a pupil or assistant of Grinling Gibbons, worked at Chatsworth and executed several monuments (see *Temple Church Monuments*, pp. 128-9 and Plate XII), and is an interesting figure. Finally, Richard Croke, the mason who built the new Mathematical School at Christ's Hospital in 1684, was Renter Warden in 1667-8, Upper Warden 1672, and Master in 1674.

Of actual criticisms I have very few. On p. 53, Lord Sydney Godolphin should surely read Sidney, Lord Godolphin, whose admirable bust by Bird is familiar to all who haunt Westminster Abbey. On p. 92 the reference to Sir John Moore is to Wilson's statue, not to William Linton's portrait; and on p. 118 Francis Evelyn is a slip of the pen for John. Was this Linton (by the way here described as Limner) the author of three signed monuments at St. Pancras, at Isleworth, and at Lincoln? In view of the fact that Robert Hooke, the surveyor, was originally a painter, and the elder Pierce both painter and woodcarver, this is more than possible.

It is interesting to find in the section dealing with Wren's restoration of Salisbury Cathedral the name of Grinling Gibbons; the monument of Seth Ward, the Bishop who was so closely in touch with Wren over the whole matter, has long been attributed by myself to Gibbons, and the reason is now obvious.

But with regard to the plate (LII) representing three monuments ascribed to Wren and Grinling Gibbons, I fear I must differ. Grinling Gibbons's documented monuments at Exton, Ashted, Westminster Abbey, Conington (Hunts), Harefield (Middlesex) and elsewhere are totally different in style. Gibbons, it must be remembered, was not a member of the Masons' Company, but of the Haberdashers', and was in no way brought up in the mason tradition. I should myself ascribe these works to the Stanton studio, but whether to Cartwright, Hill, Hartshorne or Edward Stanton himself I am not prepared to say. Nor, after a recent and prolonged study of Quellin's angels from the great altar-piece from Whitehall Chapel, now at Burnham, Somerset, do I feel convinced that the four statues so happily found by Mr. Bolton at Westminster (Plate XXIX), are necessarily Gibbons's. They seem to me more plastic, more elegant, and—dare I say it?—far more sensitive and accomplished than Gibbons's documented works in marble would lead us to expect—and those works include several full-length figures. Moreover, the best bronze statues designed by Gibbons, the Charles II and James II, were, as Vertue tells us, both modelled and cast by his assistants; in fact, Gibbons's genius lay in woodcarving, and other mediums were thrust upon him. As for Evelyn's account, Evelyn looked upon himself as Gibbons's discoverer and patron, whereas he had no special interest in Quellin, nor, as Mr. Avray Tipping has shown in the concluding pages of his

\* *Archaeological Journal*, 1928.

*Grinling Gibbons*, does he really differentiate the work of the two, any more than the accounts which record payment to both without specifying who did what. The very fact that the famous statue of St. Bibbiena at Rome is quoted as a parallel to one of the Westminster figures is surely indication enough that its sculptor had a foreign training, and was therefore Quellin, not Gibbons. Gibbons's work in marble is abundant, and, except for his two reliefs, not at all first-rate; Quellin is the most masterly marble carver working in England in the 1680's. His few surviving works, the Thynne monument in the Abbey, the splendid Sir John Cutler in Grocers' Hall (the Charles II and Sir John Cutler at Guildhall, executed for the

Royal College of Physicians, are inferior, and have suffered from painting and other maltreatments), the model of Charles II for the Royal Exchange in the Soane Museum, which shows us how much we lost when the marble perished in the fire of 1838, and the angels at Burnham make us regret that their author died so young.

In conclusion, one can only envy the Wren Society for offering so magnificent a store of material to the scholar, and draw the obvious moral of the unsearched, if not the unsearchable, riches of English art, rejoicing that the Ruskin attitude towards this period becomes daily more untenable.—Yours truly,

K. A. ESDAILE.

## SCIENCE AND ARCHITECTURE:

WREN AND HOOKE

9 Gray's Inn Square,  
London, W.C.1.  
1 March 1935.

To the Editor, JOURNAL R.I.B.A.—

SIR,—Architects take a just pride in the scientific attainments of Wren, the greatest architect of his time, and of more than his time. It is strange, therefore, that so little interest should have been aroused by the recent discovery of the architectural achievements of his contemporary Hooke, undoubtedly the most brilliant scientist of that period, and still regarded as the greatest exponent of philosophical experiment.

The correspondence and diaries of Hooke, whose tercentenary occurs this year, reveals the interesting fact that not only did he assist Wren over the carrying out of famous buildings in a close collaboration which to-day would be regarded as a very active partnership, but that he was actually the sole architect of some buildings which have hitherto been attributed to Wren.

When professor of geometry at Gresham College where Wren, only three years his senior in age, was professor of astronomy, Hooke was appointed Surveyor of Works in London after the Great Fire. The list of his subsequent architectural activities is one of which any whole-time architect of to-day might well be proud.

Yet he found time to act as Curator of Experiments to the Royal Society—of which Wren had laid the foundations before taking up his professorship of astronomy at Oxford—to investigate the behaviour of elastic bodies under stress—("Hooke's Law" so familiar to those cramming for examinations is the foundation of modern structural mechanics)—to anticipate the invention of the steam engine—to evolve a theory of gravitation which Newton subsequently adopted and built upon—to perfect the first simple theory of arch stresses, and to carry out invaluable work on the evolution of the quadrant, the telescope and the microscope.

In order to appreciate the conditions under which this tremendous volume of original work was done, it is instructive to walk round the lecture theatre of the Royal Institution and consider the almost unbelievably crude apparatus by means of which epoch-making discoveries have been made. The galvanometers and magnets used by Faraday 100 years ago in the evolution of electro-magnetism which has revolutionised civilisation the whole world over would be regarded as mere junk by the schoolboy of to-day. When one imagines what scientific apparatus must have been like 150 years earlier,

Hooke's wonderful record as an experimental scientist becomes amazing. And yet like Wren, the lecturer on astronomy, he carried on a large architectural practice as well!

How did these old-time giants contrive to achieve so much both in science and building under such hopelessly discouraging circumstances?

Is not the reason that their minds were not enfeebled by the assistance of textbooks, by the availability of earlier research, by the spoon feeding of specialist teachers, and the narcotic of copying? Everything they did had to be started by working out first principles unaided, with their own brains, their own hands, and their own home-made Heath Robinson gadgets. Thus by the finest of all mental exercises they fulfilled the maxim of Zoroaster 2,000 years earlier. "To know how much we know and how much we don't know, that is true knowledge."

When Hugh Herland, Master Carpenter to Richard II, designed Westminster Hall roof he did not look up textbooks on structural mechanics and search the *Architectural Review* of 1397 for ideas. His textbooks and stress diagrams were his innumerable models, which as we know occupied so much space that rooms in the King's palace had to be reserved for them. Yet he produced a structure which lasted for six centuries and would probably have lasted six more had he known of an antidote to the death watch beetle.

Could any modern highly educated architect or engineer repeat his achievement? When the heart had been slowly eaten out of his gaint timbers, the Office of Works merely inserted modern riveted steel trusses and hid them skilfully inside replicas of the old woodwork.

There was probably not a man in this country, or even in the world, who could correctly analyse the stresses in this or any other hammer-beam roof truss until William Harvey went back to first principles and worked them out on articulated models (footnote, JOURNAL R.I.B.A., 12 June 1924).

The curricula of modern architectural schools leaves no time for practical work with models and tests to destruction—although the training of the modern doctor includes long periods in the dissecting room, and that of the modern engineer still longer periods in the workshops.

As a result the modern architect knows as much or as little of the structural anatomy of his buildings as the modernist sculptor apparently does of the anatomy of the human body.

*Hinc ille lachryme*—Yours faithfully,

PERCY J. WALDRAM [L.]



## HOUSING

## THE VALUE OF LOCAL CHARACTERISTICS

5 Carlton Gardens,  
S.W.1.

25 February 1935.

To the Editor, JOURNAL R.I.B.A.,—

DEAR SIR,—Since stating in the House of Commons that it is possible to have a good architect design small working-class houses of the three bedroom non-parlour type, to let for 10s. a week or less, including rates, I have received a number of communications confirming this affirmation.

I feel most strongly that it is essential, if the country is to undertake this tremendous housing and slum clearance drive with success, that we should maintain the individual character of the country, while considering the whole enterprise as a national one. But it would be fatal if an attempt were made to have all these houses looking more or less alike, without regard to the needs of the various parts of the country or to local characteristics.

I do feel we must standardise certain interior details and must do large scale planning, but it is vitally important that local architects of good standing should be in charge of the designing work in the various counties.

In the circumstances I wonder if any of your readers who have already designed working-class houses that are being rented at 10s. a week or less could be so very kind as to let me know, so that I could justify my statement by an even wider range of references than are available at this time.—Yours truly,

ALFRED C. BOSSOM, M.P. [F.]

## THE LIBRARY EXHIBITION

## ARCHITECTURAL DRAUGHTSMANSHIP

39 Maddox Street, W.1.

26 February 1935.

To the Editor, JOURNAL R.I.B.A.,—

SIR,—After spending a fascinating hour peering into the most interesting collection of drawings and designs recently on exhibition I came away with the impression that the eyesight of the previous generations who produced most of these fine details must have been devoid of any suggestion of weakness. Amongst many instances are Barry's drawings in the Palace of Westminster competition.

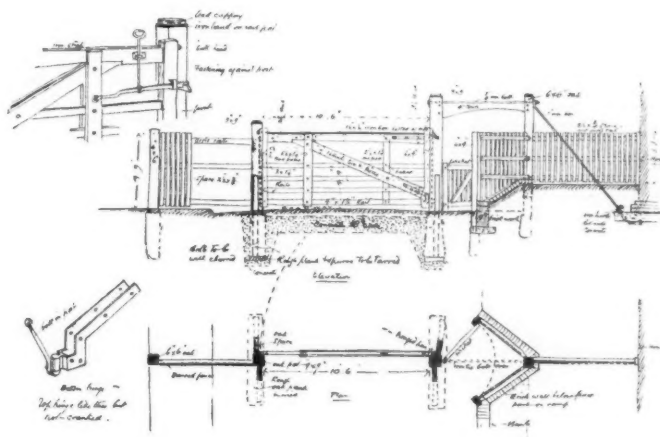
It is true that these drawings were done in a more leisurely age, but still the contrast with modern drawings is very pronounced.

An example of the heavy line draughtsmanship which afterwards came into common use in the early part of the twentieth century can be seen in Waterhouse's perspective of Manchester Assize Court, and how truly do this and similar designs of the period about 1860 symbolise the atmosphere of that age.

Looking at the much earlier eighteenth-century examples, one feels that these truly expressed an age where art, music and general refinement of taste were prevalent amongst educated folks, in contrast to the ostentatious vulgarity of Britain's "successful-business-man age."

In conclusion, may I offer thanks to the industrious staff who unearthed from their hidden places this most interesting exhibition?—I remain, Sir, yours, etc.,

J. D. HOSSACK [F.]



A WORKING DETAIL FOR A GARDEN GATE AT STANDEN, EAST GRINSTEAD

A drawing by Philip Webb from the recent Library Exhibition



## Miss Gwendolen Mason's Harp Lecture-Recital

The opportunity of hearing a programme of harp music played by one of the most distinguished contemporary harpists attracted a large audience to the Institute on Monday, 25 February, when Miss Gwendolen Mason gave a lecture and recital.

The harp's rare appearance as a solo instrument is due to its lack of a literature; and this was attributed by Miss Mason, in her short history of the instrument, to the technical limitations which survived till 1810, when Erard perfected his double-action harp. In her programme, only a Handel Concerto (written for an English performer on the single-action harp) antedated Erard's instrument.

Contemporary composers, however, are trying to remedy this neglect, and besides a group of short pieces, they contributed, in the second half of the programme, two ensemble works: a quintet by Arnold Bax (in which

Miss Mason was joined by the David Martin Quartet) and the Ravel Introduction and Allegro (with Joseph Slater, flute, and Stephen Walters, clarinet).

We can heartily agree with Miss Mason that there is great scope for the harp in such ensembles, and can only hope that more composers are writing works with an eye on the golden opportunity of having them played by her.

Having heard Miss Mason's playing, there must have been many supporters for her plea for more harps in the orchestra; on the understanding, of course, that they will all play as she does; or better still, let composers keep the texture light so that her harp will tell without difficulty.

It was a most delightful evening, for which we must warmly thank Miss Mason and her collaborators; and no less Mrs. Lanchester, who arranged their visit to the R.I.B.A. A. P.

## The Building Research Station

A VISIT OF MEMBERS OF ALLIED SOCIETIES AND THE R.I.B.A. SCIENCE STANDING COMMITTEE TO WATFORD

The Director of Building Research welcomed the members of Allied Societies at their first visit and briefly explained the relation of the work of the Station to some of the problems encountered by architects.

A tour of some of the laboratories was then made, in the course of which investigations in progress on clay bricks were inspected. Some of the problems connected with brick making were discussed, and examples of the more common defects, such as underfiring and efflorescence, were examined.

Work on the resistance of cement products to various deleterious agencies was described and the effects of additions of pozzolanas in reducing the effects of such agencies were demonstrated. In particular the resistance of cement concrete to sea-water was dealt with.

A discussion took place on the problems which arise in the use of magnesium oxychloride flooring, a material which in certain cases has proved troublesome. The evidence available points to the conclusion that price cutting has been a major difficulty, and that firms with a reputation to lose have not been able to compete, except at a loss. To remedy this state of affairs a "code of practice" for good work is being prepared in collaboration with a representative group of specialist firms; the success of this effort will, of course, depend on the use which architects and others make of the code when it is finally published.

A compression test on a wall consisting of perforated bricks in cement mortar was witnessed. The wall was of 9 inch work, 4 feet 6 inches long, and 9 feet high. The writer wonders whether other members felt a little sympathy with a piece of splendid brickwork tested to destruction; we were on science bent and no such sentiment found expression.

A discussion then ensued on the subject of mortars for brickwork. It was pointed out that within ordinary working limits the strength of brickwork is not necessarily increased by increasing mortar strength. Thus, higher brickwork strengths may often be obtained with lime-cement (compo) mixes than with ungauged cement mortars. It follows, therefore, that

properties of the mortar other than that of strength alone should be the deciding factors in the choice of mixes.

Finally an inspection was made of the series of brick specimens which have been exposed out of doors, half buried in the soil with the object of intensifying the destructive effects of soil salts, alternations of wetting and drying, and of frost action.

The visiting members of the Science Standing Committee, R.I.B.A., mainly concentrated their attention to work in the plaster section. A series of plaster panels had been prepared, in which examples of all the common types of calcium sulphate plaster were represented. There are various factors which influence an architect in the choice of materials of this kind, and in many cases an enhanced degree of hardness and resistance to accidental injury is the justification for the choice of a more expensive finishing material. The visitors themselves were asked to make tests of the degree of resistance to injury which the various panels appeared to possess, and to express their opinion on the results. The tests included a very simple punch test for hardness which has been developed at the Station, and in addition the effects of scraping and hammering were noted.

As a result it was generally agreed that for ordinary work all the various types of calcium sulphate plaster gave sufficient strength to resist hard usage provided they were applied in the correct manner. Tests on panels in which the plasters had been worked beyond their setting periods showed that the strength of the plasters and their resistance to injury may be much impaired by such treatment, and that this is of far more significance than the variations in hardness between any of the plasters when properly applied. Since the period of working varies with the type and manufacture of plasters, it will probably be conceded that the present practice in the trade of marketing plasters under proprietary names, with no indication of their true nature, makes it virtually impossible to draw up working specifications in any way adequate to control the manipulation of the various materials.

The visit was much appreciated by those present, who expressed the hope that further visits could be arranged.

## Notes

### VICE-PRESIDENTS' ENGAGEMENTS

Mr. John Begg, V.P., will attend the annual dinner of the York and East Yorkshire Architectural Society on 15 March and represent the President.

Mr. W. H. Ansell, V.P., will attend the dinner of the Society of Incorporated Accountants and Auditors on 3 April and represent the President, at the Guildhall.

### STATISTICAL SERVICE FOR THE BUILDING INDUSTRY

The Building Industries National Council announces that the Special Committee for Public Relations has inaugurated a statistical information service for the building industry.

The Committee, during its consideration of fluctuations of building activity, has undertaken a considerable amount of statistical and economic research into the problems of the industry. The Committee has also had occasion to discuss with various Government statistical departments the question of increasing and improving the available information. The Committee has also decided to collect and collate whatever statistical information may be available within the industry itself, and the methods to this end are under active discussion.

For some months past the Committee has issued a collection of the basic statistics, together with a conspectus of the economic position and prospects of the industry, in what is known as the *Statistical Summary*. The *Summary* is now to be enlarged and issued monthly as a permanent publication under the title *Summary of Building Statistics*, the first number of which will be issued early in this month. It will include special articles on topics of particular interest, a statement on the general economic position and prospects of the industry, together with detailed notes and tables on the unemployment position in the building, public works contracting, constructional engineering and materials industries; recent movements in the value of building plans passed by local authorities; the housing position in England and Wales and in Scotland; imports and exports of building materials. The Committee also offers an information service and will be prepared to answer statistical enquiries. In many cases, for example, it will possess more detailed information than can be published in the *Summary of Building Statistics*. Subscribers to the *Summary* will not be charged for this service unless considerable labour is entailed.

The Committee feel that the regular publication of such information will meet a real and urgent need which is becoming increasingly felt. As additional information becomes available as a result of the research work carried out by the Committee, under the chairmanship of Mr. Sydney Tatchell [F.], it will be made available in the *Summary*.

### NOISE IN BUILDINGS

The Science Standing Committee has appointed a sub-committee to compile a list of recommendations to architects and builders relative to the elimination of noise in buildings. Some idea of the scope of this work is indicated in a letter from Mr. Hope Bagenal published in the R.I.B.A. JOURNAL for 12 January 1935.

The Committee believes that many architects, in the normal course of practice, will have conducted experiments or made authoritative observations in relation to this question, and

would be willing to place their findings or recommendations at the disposal of the Science Committee.

Mr. L. W. Thornton White (Hon. Secretary, Science Standing Committee) will be glad, therefore, to receive any reports or suggestions that members may care to make, before 20 March next.

### BRITISH INSTITUTE IN PARIS

#### AWARD OF SCHOLARSHIPS

The Trustees and Committee of the British Institute in Paris have decided to offer scholarships to a total value of £600 to be held in Paris during 1935-6. Scholarships will range in value from £25 to £150 and will normally be tenable for one academic year.

The Committee are desirous of aiding, not only students who wish to pursue some course of advanced study in Paris, but also students who are anxious to obtain a thorough knowledge of contemporary French life for business or other reasons. They are accordingly prepared to consider applications from men and women who are engaged, or propose to engage in, commerce and industry, as well as from those concerned primarily with teaching or research.

The scholarships will be given to men and women of British nationality, who are prepared to follow courses at the Guild of the British Institute in Paris, and, if desirable, in any of the Schools of Learning in Paris. Preference will ordinarily be given to candidates who are not less than 21 years of age on 31 July 1935. Holders of the scholarships will be expected to become members of the Club of the Institute at 6 rue de la Sorbonne, and to take part in its social activities.

Forms of application, conditions, and any other information can be obtained from the Secretary, British Institute in Paris, 1 Old Burlington Street, W.1. Applications for the scholarships should be sent in to the Secretary through the Vice-Chancellor of the University or the head of any other Educational Institution now being attended. Applications must be received before Saturday, 30 March.

### ARCHITECTS' BENEVOLENT SOCIETY

As already announced in these pages the Blue Circle Players of the Cement Marketing Company gave a performance of "Loyalties" at the Arts Theatre last December in aid of the Architects' Benevolent Society.

We have now much pleasure in announcing that the sum of £104 has been handed over to the Benevolent Society as a result of the proceeds of the sale of tickets and programmes.

### SIR JOHN SOANE'S MUSEUM

Sir John Soane's Museum, 13 Lincoln's Inn Fields, W.C., opens on Tuesday, 5 March, for the following six months, when the public will be admitted free of charge between 10.30 a.m.-5 p.m. on Tuesdays, Wednesdays, Thursdays and Fridays. At other times admittance is by card to be obtained from the Curator, Mr. Arthur T. Bolton, F.S.A., F.R.I.B.A.

### ROYAL ENGINEERS

We have been notified by the War Office that the first edition of the pamphlet which was issued, describing the terms of service in the supplementary reserve of officers of the Royal Engineers, contained a wrong statement of the gratuity paid to officers at the end of each year's training. This is £20 and not £22 10s. as reported in the last JOURNAL.

## DORIC ARCHITECTURAL CLUB, OXFORD

A general meeting of the Doric Architectural Club was held at Boswell House, Oxford, on Thursday, 21 February 1935, after which, with Mr. H. K. Ablett in the chair, an interesting lecture on "Wrought Ironwork" was delivered by Mr. Arnold Silcock, F.R.I.B.A.

The lecturer prefaced his remarks by mentioning the fact that the charcoal iron, which was used in early periods, did not rust like the modern material and instanced the famous Delhi Column, which, incidentally, is built up of three-sixteenths inch rings of over 99 per cent. pure iron. It was stated that the Chinese worked the metal longer than any other country.

In tracing the development of ironwork in this country, Mr. Silcock said that in the tenth and eleventh centuries, iron was first used to support wood. In the latter part of the eleventh and throughout the twelfth centuries, iron grilles first appeared, a famous example being Queen Eleanor's grille in Westminster Abbey, and this latter century saw the earliest form of gate in which wood was combined with the iron; the gates of Ham House, Richmond, being given as an illustration.

In the thirteenth century, doors were often entirely studded with iron, a notable example being Henry III's door at Windsor, while in the fourteenth century examples were few, and these mainly

decorative. Fifteenth-century ironwork was strong and functional and bronze was often incorporated with the iron.

In 1620, Dud Dudley smelted iron ore with pit coal, but this important discovery was not taken full advantage of until the secret, which was lost at his death, was rediscovered in 1713. Towards the end of the latter century a continental smith named Jean Tijou made his appearance; he produced some of the finest work to be found in England.

In the eighteenth century, "The Golden Age" of ironwork, groups of smiths were formed in various parts of the country, the more important being the Welsh smiths under the Davis family, the Midland smiths under Robert Bakewell and the West of England smiths under William Edney. Another smith of note was Thomas Robinson, who was responsible for several examples of ironwork at Oxford. Towards the end of the century there was a general decline in the art.

In conclusion a reference was made to modern work, especially that of Edgar Brant. The lecture was illustrated with some very fine slides. Local smiths had been invited to this lecture, and during the discussion which followed, one of these visitors showed some splendid photographs of his own work and also a fine example of a sanctuary lamp.

The Club's thanks are due to Mr. Silcock for an extremely interesting paper.

## Allied Societies

HAMPSHIRE AND ISLE OF WIGHT ARCHITECTURAL  
ASSOCIATION  
ANNUAL DINNER

A record gathering, approximately 250 in number, attended the fifth annual dinner of the Hampshire and Isle of Wight Architectural Association, held in the South-Western Hotel, Southampton, on Tuesday, 19 February.

The guests were received by Lieut.-Colonel R. F. Gutteridge, T.D. [F.], president of the Association, and Mrs. Gutteridge, and Mr. W. H. Ansell, M.C. [F.], vice-president of the R.I.B.A., and Mrs. Ansell.

Others present included the Mayor and Mayoress of Southampton, the Mayor and Mayoress of Winchester, Mr. Alan Arnold, F.S.I. (president of the Chartered Surveyors' Institution), and Mrs. Arnold, Sir Ian MacAlister, M.A., and Lady MacAlister, Mr. Stanley Hamp [F.] (president, Berks, Bucks and Oxon Architectural Association), Major H. P. G. Maule, D.S.O., M.C., F.R.I.B.A. (chairman, Hertfordshire Chapter of the Essex, Cambridge and Hertfordshire Society of Architects), and Mrs. Maule.

The Earl and the Countess of Bective, Councillor M. H. Pugh (president, Southampton Chamber of Commerce) and Mrs. Pugh, Lt.-Col. H. M. Clifford and Mrs. Clifford, Mr. Kenneth H. Vickers, M.A., J.P. (Principal of University College, Southampton), and Mrs. Vickers, Mr. R. R. H. Meggeson (Town Clerk of Southampton) and Mrs. Meggeson, Mr. S. C. Stanton (Borough Engineer and Surveyor of Southampton) and Mrs. Stanton, Mr. C. H. Pace (president, Southampton and District Building Trades Employers) and Mrs. Pace, Mr. H. Hinkins, A.M.I.S.E. (president, Southern Counties Federation of Building Trades Employers), and Mrs. Hinkins, and many other members of the R.I.B.A.

After the loyal toast had been honoured, the President invited Councillor Pugh to present the prizes to the winners of the first and second places (Mr. H. G. Hayter and Mr. L. R. Volonterio respectively) in the recent competition organised by the Association, in conjunction with the Southampton Chamber of Commerce, for the design of a house not exceeding £600.

Colonel Gutteridge then proposed the toast of "The local government authorities in Hampshire and the Isle of Wight." In saying that the past year had been one of the greatest in the history of the architectural profession, he referred to the opening of the R.I.B.A.

building and to the inspiring words spoken by His Majesty on that occasion. He also quoted the speech made by H.R.H. The Prince of Wales at the R.I.B.A. Centenary Banquet, which he said had as much meaning for local authorities as for architects. He referred to the potentialities of co-operation between local authorities and architects' panels and to the success with which the panel scheme was working in Hampshire. Among his definite recommendations was one that the local authorities should call in the help of one or two local private architects as consultants on housing and slum clearance work.

The Mayor of Southampton, who replied to the toast, in commenting on this suggestion, reminded the President that local authorities had their own officers who, in his experience, always welcomed expert assistance. In passing, he expressed regret that Southampton had no single member of the architectural profession on its civic body.

He then referred in glowing terms to Mr. Berry Webber's civic centre, which he said had established a precedent which was being followed all over the country.

Mr. Alan Arnold submitted the toast of "The Royal Institute of British Architects and its Allied Societies." He referred to outstanding examples of the work of architects of the past and present, and went on to eulogise the work of the Royal Institute and of its allied societies, notably that of the Hampshire and Isle of Wight Architectural Association, which, founded in 1912, now had a membership of over 330.

Before replying to the toast on behalf of the Royal Institute, Mr. Ansell presented to Mr. R. D. Carpenter, the prize awarded annually by the Hampshire Association to the student making the best measured drawing.

Mr. Ansell prefaced a scintillating speech by explaining that he was a substitute for Sir Giles Gilbert Scott. There was, he said, no adequate substitute for Sir Giles: his amazing power and versatility as an architect and his delightful and magnetic personality as a man made him inimitable.

Mr. Ansell said he thought the Institute could be pardoned in attempting a most difficult physical exercise for a centenarian body. Not only had it completed 100 years of useful and honourable existence, but it had brought to fruition a rebuilding scheme that might have terrified any body less courageous.

In spite of certain things which had been published in the profes-

sional Press lately, the R.I.B.A. was not a body of old fogies: it was essentially a young men's society.

The Institute was doing very serious and valuable work, said Mr. Ansell in conclusion, and while they had the co-operation of such societies as the Hampshire Association, they would continue to pursue their aims of a high standard of design and construction, and of everything else connected with the architectural profession.

Mr. Stanley Hamp, who also responded to the toast, referred to the great part which the allied societies played in the advancement of the interests of the profession. By initiating and perfecting a new policy of co-operation between architects, builders, quantity surveyors and operatives, a great future was assured, he said.

The toast of "The Building Trades" was submitted by Mr. Ernest Bird, and replies were made by Mr. H. Hinkins and Mr. C. H. Pace.

The final toast—that of "The Guests"—was proposed by Mr. Vickers and replied to by Major Maule.

Dancing followed, music being provided by Philip Brown's Grosvenor Band.

#### THE NORTH STAFFORDSHIRE ARCHITECTURAL ASSOCIATION

Sir Giles Gilbert Scott, President of the Royal Institute of British Architects, was the guest of honour at the annual dinner of the North Staffordshire Architectural Association, at the North Stafford Hotel, Stoke, on 13 February.

The dinner, one of the most successful held by the Association, was the eighth of the series, and was attended by a representative assembly. A feature was the delightful sketch on the menu card of the Tower and Choir of Liverpool Cathedral—a graceful compliment to Sir Giles Gilbert Scott.

The President of the Association, Mr. F. V. Hulme [L.], was in the chair, supported by the Lord Mayor of Stoke-on-Trent (Alderman A. C. Harvey), Sir Giles Gilbert Scott, R.A., President of the Royal Institute of British Architects; Sir Ian MacAlister, Secretary of the Royal Institute of British Architects; Lieutenant-Colonel Ernest Gee [F.], President of the Liverpool Architectural Society; Mr. Josiah Wedgwood, Mr. J. T. Webster, Mr. F. Morrall Maddox, A.R.I.B.A. (Past President of the Association), Mr. A. Burton, M.I.C.E. (Stoke-on-Trent City Surveyor), Mr. R. S. Murt, M.I.C.E. (Staffordshire County Surveyor), Mr. T. R. Piggott, A.R.I.B.A. (City Architect), Mr. H. Goldstraw, A.R.I.B.A. (Hon. Treasurer of the Association), Mr. J. F. Carr (City Director of Education), Mr. Gordon M. Forsyth (City Director of Art Education), Mr. P. T. N. Forester, Mr. G. J. V. Bemrose (Curator, City Museums and Art Gallery), Mr. A. E. Gray, Mr. Harold Goldstraw, A.R.I.B.A. (Hon. Treasurer of the Association), and Mr. Donald C. Campbell, L.R.I.B.A. (Hon. Secretary of the Association).

Mr. Josiah Wedgwood proposed the toast of "The Royal Institute of British Architects, and the Allied Societies, including the North Staffordshire Architectural Association."

He referred to the honour they felt in the presence of Sir Giles Gilbert Scott. The centenary of the R.I.B.A., he said, gave the toast particular significance. The R.I.B.A. was as lively and active at the end of its centenary as at the beginning. He also referred to the R.I.B.A. building as the best testimonial to its youth and virility.

He suggested that the next exhibition of British Art in Industry might be held under the auspices of the R.I.B.A. and in its building. The position of architects in the modern world was of immense importance; they had to see that the houses, towns and factories of the future were well planned, but the public would have to support them by opening their purses a bit wider.

He concluded by referring to local affairs, to the opportunities that had been missed in the development of the Six Towns and to the growing consciousness of their citizens that all is not as it should or

might be. "I suggest," he said, "that this generation should think of the verdict of history, and that one of our chief hopes that the verdict may yet be favourable is that men of the courage and vision of Sir Giles Scott and kindred spirits are among the architects."

Responding to the toast, Sir Giles Gilbert Scott expressed pleasure at being present.

He then spoke of the relation of architecture to industry. The architects were specialists whose assistance was essential. The design of industrial buildings was among the most important work that an architect could be called upon to do. "I look forward," he said, "to the time when architects will come much more into the national life. They are coming into it in town planning, slum clearance, and housing, and are becoming much more a social asset."

Colonel Gee, President of the Liverpool Architectural Society, of which the N. Staffs Society is a branch, also responded to the toast. He suggested that the Six Towns should have one great civic centre. He referred to the growth and prosperity of the Society evidenced by their new headquarters in Stoke and the exhibitions of students' work which they had been able to hold.

Mr. F. V. Hulme referred to the slum clearance activity in Stoke, which, he said, ranked second in the country for its activity in this.

Mr. P. T. N. Forester proposed the toast of the City of Stoke-on-Trent and the Lord Mayor replied. The Lord Mayor spoke of the development of Stoke and said that although no one would declare it to be a beautiful city, they had made tremendous strides towards making it so.

Anyone, he suggested, with any civic pride would support the idea of a civic centre, but the essentials of a federated city would have to come first. It was a difficult task to bring together the Six Towns, but much had already been done.

The toast of the Guests and Honorary Members was proposed by Mr. Donald Campbell and replied to by Mr. Bemrose, Curator of the City Museums and Art Gallery, and by Sir Ian MacAlister, who added an expression of good wishes to the Association.

#### NORFOLK AND NORWICH ASSOCIATION OF ARCHITECTS

The annual meeting of the Norfolk and Norwich Association of Architects was held on Friday, 18 January, at the Music House, King Street, Norwich, the President, Mr. E. W. B. Scott [F.], presiding.

The following Officers and Council were elected:—

President. E. W. B. Scott [F.].  
Ex-President. C. Upcher [F.].  
Vice-President. J. O. Bond [F.].  
Vice-President (County). H. C. W. Blyth [L.].  
Hon. Editor. T. G. Scott [F.].  
Hon. Secretary. E. H. Skipper [F.].  
Council. F. H. Swindells [F.], A. S. J. Wearing [F.], J. N. Meredith [A.].  
Associate Member of Council. H. J. T. Gowen.  
Hon. Auditor. C. H. Dann [A.].

The annual report was read and adopted, also the statement of accounts and balance sheet.

Prizes offered annually to students were awarded to:—

Mr. M. Hare, for measured drawings, 1st prize; Mr. M. Little, for measured drawings, 2nd prize; Mr. C. Hobbs, for sketches, prize presented by the President; and

Mr. R. O. Bond gave a comprehensive criticism of the drawings received.

Mr. R. A. Horn was elected as an Associate Member of the Association.

Reports were received from members of the Association who serve on the various committees, including the East Norfolk Regional Planning Panel, the Norwich Society, the Caistor Excavation Com-



mittee, the Norfolk and Suffolk District Council of the Worshipful Company of Plumbers, from whom it was learned that a great deal of voluntary work is being done for the City and County.

The report of the Council for the year 1934 showed a total membership of 105, against 97 for the previous year. The report included references to the meetings of the Association, the Bi-annual Dinner, the annual outing, the work of the Architectural and Technical Classes at the School of Art, and reported that the Association had agreed to form a Panel for the Norfolk (North and East) Planning Scheme. The Advisory Panel to the Norfolk (East Central) Joint Town Planning Committee was continuing its work. The report also referred to the visit of the Conference of the Franco-British Union of Architects in July. A tribute was paid to Mr. E. W. B. Scott, the President for the coming year, for his work as hon. secretary of the Association. The report drew attention to the proposal of the Norfolk Corporation to apply for Town Planning powers in the built-up areas of the city, and stressed the need for co-operation in this matter.

Mr. E. W. B. Scott in his Presidential Address referred first of all to the position and function of the R.I.B.A., and to all the various aspects of its work for the profession. He said it was the duty of every architect in the profession first of all to insist that "architecture to-day must mean planning, tidiness, design, and neighbourliness, and that planning is the sorely needed service which architects can render to the community," and secondly, to back up the R.I.B.A. and the Association in their new publicity campaign. The R.I.B.A. Public Relations Committee, by means of publications, lectures, and exhibitions and Press notices, was trying to force upon the public notice the meaning and significance of architecture: this policy was one of enormous importance and worthy of support by local effort along the same lines.

Mr. Scott then congratulated the Associate Members of the Association on their work for the Examinations. He referred to the new course of training for the Intermediate Examination and said there was good hope of a course for the Final being in operation next year. He appealed to members not to scorn the architectural work of the past, but to take every opportunity of studying the beautiful examples of past periods in Norwich itself. He also suggested that the Association should develop its social side by holding informal social evenings, and mentioned a proposed week-end cruise to Holland.

#### LECTURE ON THE NORWICH MUNICIPAL BUILDINGS

A well-attended lecture was given in Stuart Hall, Norwich, on Friday, 22 February, when Mr. C. H. James, who with Mr. S. R. Pierce, is the architect of the new municipal buildings in Norwich, described the plans. Invitations had been issued to the public and the Mayor, Mr. P. W. Jewson, was in the chair. Mr. Jewson, in opening the proceedings, thanked the Association for giving them the opportunity of learning the facts about the buildings to which they all looked forward so hopefully. The question of the need of these buildings was settled before the architects came on the scene, so that was not a question which was before them that evening. "Unfortunately," he said, "in order to get the site for these new buildings we have got to lose a considerable number of old buildings from our city, and therefore we need to be assured that the new buildings will be a worthy addition."

Mr. James next spoke.

"You," he said, "are our clients, and we are particularly anxious that you should take an interest in the new buildings, because the sympathy of the client with the architect is essential. We have been singularly fortunate so far in that your elected representatives and the city officials have been more than helpful to us and we are now looking forward to having your sympathy as well because we are about to inflict on you the most important building that has been erected in Norwich since the Cathedral. We do not underestimate our task and are rather frightened at times."

Mr. Pierce then showed lantern slides of ancient and modern European public buildings, some of which were similar to those to be built in Norwich. Commenting upon these buildings, he said

that at Norwich they were trying to give something related to buildings of ancient and modern times.

Mr. C. H. James then described the preliminary drawings, the actual competitive drawings and the working drawings. "The site," he said, "was not an easy one; they had thought that the main entrance to the municipal buildings should be at the corner of St. Peter Mancroft and Bethel Street; but, having seen the position of the Castle and the whole lay-out of the Market Place, they decided that the entrance must be central." As to the Sir Garnet Wolsey tavern in the Market Place, Mr. James explained that this inn was shown on the perspective drawing to be removed. The architects and a great many others did not want it to be removed, and it was thought it had better remain. He also declared that with a few exceptions nothing was on the site of historic importance.

Remarking that they had now seen what they would get for a 24d. rate, Mr. James, by way of illustration, said that for a person rated at £100 a year the cost would be £1 a year for thirty years. It was an addition to the present rate of 1.18 per cent., and, but for the fact that the Ministry of Health insisted upon a sinking fund to be paid off in thirty years, it would be very much less. This figure took no account of saving due to centralisation, efficient planning, proper light and heating and saving of staff. Even ratepayers blind to beauty or a sense of dignity or order must appreciate that they would get very largely increased market dues and a considerable increase for car-parking.

Mr. Eric B. Scott (President of the Norfolk and Norwich Association of Architects) having expressed regret at the absence of Mr. Atkinson, proposed a vote of thanks to the Lord Mayor and Lady Mayoress and to the architects. "It was a unique thing," he said, "for the winning architects in a great competition of this character to meet the citizens and have a frank chat with them. He congratulated them on winning and on their wonderful design."

Mr. H. E. Witard, seconding, recalled the first controversy over the municipal buildings and the plans prepared to occupy the site of a public-house.

Mr. James acknowledged the vote and thanked the architects of Norwich for their reception, especially seeing that two interlopers had to come to Norwich and "pinched" the best job in the city for the next 500 years.

#### WEST YORKSHIRE SOCIETY OF ARCHITECTS

##### THE FORMATION OF BRANCHES

Mr. Victor Bain, President, took the chair at a meeting of Huddersfield and District members, held at the Technical College, Huddersfield, on 31 January, when, after explanations by the President and the Joint Hon. Secretary, Mr. Harold Conolly, it was unanimously decided that an area branch of the society be formed.

Consequent upon this, an inaugural general meeting of the branch was held at the School of Art, Huddersfield, on 15 February, when the following were elected officers:—Chairman, Mr. Norman Culley; Vice-chairman, Mr. Clifford Hickson; Committee, Messrs. Frank Abbey, J. E. Lunn, L. Smith, and a member to be elected; Hon. Secretary, Mr. J. L. Thorpe.

Mr. Victor Bain and Mr. Norval Paxton attended meetings held at Halifax on 29 January, and at Harrogate on 30 January, at which it was resolved to form branches respectively.

A course of two lectures to secondary school students was given at the Bradford Girls' Grammar School, the first of these—on 28 January—being given by Mr. Norman Culley on "Architecture: Past, Present and Future." This was illustrated by 130 slides. The chair was occupied by Mr. Thomas Boyce, Director of Education, and was attended by about 200 members of the Historical Society and students of the secondary schools. On 12 February the same lecturer spoke upon "The Preservation of the Countryside," and the president, Mr. Victor Bain, also spoke on the same subject.

A course of two lectures was given at the Leeds Grammar School, the first on 6 February, when Mr. G. H. Foggitt spoke on the "History of Architecture," and again on 13 February, on "Modern Architecture." There was an attendance at each lecture of about 40 senior boys.



### ROYAL INCORPORATION OF ARCHITECTS IN SCOTLAND

At the monthly meeting of the Council of the Royal Incorporation of Architects in Scotland held at 15 Rutland Square, Edinburgh—Mr. Wm. B. Whitie [F.], President, in the chair—a report by the Housing and Town Planning Committee in reply to a Questionnaire submitted by the Scottish Architectural Advisory Committee was approved as to the best architectural talent available being obtained for working class housing and other schemes in town and country. Mr. James A. Arnott [F.] was appointed representative to the R.I.B.A. Board of Architectural Education for 1935-36, while the President, with Messrs. Balfour Paul, Arthur and Soutar were appointed Representatives to the Council of the Royal Institute. A donation of £10 was voted to the North British Architectural Students' Association. Sir G. Washington Browne was unanimously nominated as an Honorary Fellow of the Royal Incorporation in respect of his distinguished services in art and architecture.

### THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND

The first Council meeting of the new session was held on 11 January 1935.

Present: The President, Mr. Harry Allberry, F.R.I.A.I., in the chair; Messrs. J. H. Webb, J. J. Robinson, T. F. Strahan, W. H. H. Cooke, Edwin Bradbury, C. A. Harrington, L. F. Giron, H. V. Millar, R. M. Butler and J. V. Downes, B.Arch. (hon. secretary).

Mr. J. V. Downes having stated that pressure of work prevented him from continuing his post as honorary secretary, it was resolved that a ballot for a new honorary secretary should be taken. Subsequently Mr. Downes was elected vice-president for the coming year.

The following were elected to the various committees:—

*Professional Practice.*—Messrs. G. F. Beckett, T. J. Byrne and J. H. Webb.

*Arts.*—Messrs. L. F. Giron, F. G. Hicks and J. J. Robinson.

*Publication.*—Messrs. L. F. Giron, C. A. Harrington and T. F. Strahan.

*Town Planning.*—Messrs. J. M. Mitchell, J. Moore, J. W. O'Sullivan and Manning Robertson.

The Board of Architectural Education was constituted as follows:—Messrs. G. Atkinson, E. A. Barrett, R. M. Butler, T. J. Byrne,

W. H. H. Cooke, J. V. Downes, L. F. Giron, G. H. Leask and J. J. Robinson.

Messrs. W. H. H. Cooke, L. F. Giron, V. Kelly, J. J. Robinson and J. H. Webb were nominated to consider the revision of the Articles of Association and Bye-laws.

It was resolved that three members of the Architectural Graduates' Association (N.U.I.) should be asked to meet representatives of the Council in connection with regulations for architectural competitions limited to Irish architects and Irish assistants. Consideration of correspondence from the Architectural Graduates' Association was deferred until the next meeting.

The following were elected as members of the Institute:—Messrs. L. W. Manning, Dublin, and E. P. O'Flynn, Cork.

### THE BIRMINGHAM AND FIVE COUNTIES ARCHITECTURAL ASSOCIATION

The ninth meeting of the Session was held on Friday, 15 February, in the Galleries of the Royal Birmingham Society of Artists, the President, Mr. W. T. Benslyn [F.], occupying the chair.

The decease of Mr. W. J. P. Riley, who joined the Association in 1919, and of Mr. D. G. Evans, a Student Member, was announced. It was resolved that the regrets of the Association should be entered upon the Minutes and a letter of condolence sent to the relatives.

A paper on the Masonic Peace Memorial was then read by Mr. H. V. Ashley, the architect of the building in partnership with Mr. Winton Newman. This was dedicated in July 1933, and its site was far from an ideal one, but the plans exhibited showed the skill with which the difficulties presented by it had been overcome. The building might be described as designed on simple lines in the classic manner, and the tower, at the junction of Great Queen Street and Wild Street, was a worthy memorial of those who suffered during the late war.

The paper was illustrated by a number of lantern slides from which it was possible to form some idea of the variety and beauty of the detail, although the colour, which forms so important a part of the various decorative schemes, was necessarily absent. The materials employed throughout, the lecturer remarked, were almost all of British or Empire origin, and every man employed upon the work had been imbued with the spirit of Freemasonry and had striven to make the whole a credit to the craft.

A vote of thanks to the lecturer was proposed by Mr. S. J. Fenton, who spoke from personal knowledge of the good acoustic properties of the Lodge Rooms. This was seconded by Mr. Holland W. Hobbiss [F.] and supported by Alderman Lucas, Mr. William Doubleday and others.

## Notices

### THE SEVENTH GENERAL MEETING, MONDAY, 25 MARCH 1935, AT 8 P.M.

The Seventh General Meeting of the Session 1934-35 will be held on Monday, 25 March 1935, at 8 p.m., for the following purposes:—

To read the Minutes of the Sixth General Meeting held on Monday, 11 March 1935; formally to admit members and students attending for the first time since their election.

To read a paper on "The Work of Messrs. Smith and Brewer" by Henry M. Fletcher, M.A. Cantab., Hon. Secretary R.I.B.A. [F.].

### BRITISH ARCHITECTS' CONFERENCE, GLASGOW

19-22 JUNE 1935

The Annual Conference of the Royal Institute of British Architects and of its Allied and Associated Societies will take place at Glasgow from 19 to 22 June 1935.

The Glasgow Institute of Architects and the Royal Incorporation of Architects in Scotland have in hand the preparation of a most attractive programme and particulars will be issued in due course.

All members and students of the R.I.B.A. and all members

and students of the Architectural Association and the Allied Societies are cordially invited to attend the Conference.

It is expected that there will be a large attendance of members from all parts of the country, and they are urgently requested to arrange for their hotel accommodation at the earliest possible date so as to avoid the risk of a disappointment.

The Executive Committee of the Conference have kindly furnished the following list of hotels with charges:

Central Hotel, Gordon Street, C.1. Accommodation, 390 persons. Tariff, single bedroom, 8s. 6d. to 12s. 6d.; double bedroom, 17s. to 21s.; breakfast, 4s.; luncheon, 5s.; dinner, 7s. 6d.

St. Enoch Hotel, St. Enoch Square, C.1. Tariff, bed and breakfast, 12s. 6d.; full board, per day, 22s. 6d.; luncheon, 4s. 6d.; dinner, 6s. 6d.

N.B. Station Hotel, 40 George Square, C.2. Accommodation, 40 single and 40 double bedrooms. Tariff, bed and breakfast, from 12s.; full board, per day, 21s. 6d.; luncheon, 4s.; dinner, 5s. 6d.

Adelphi Hotel, 170 Argyle Street, C.2. Accommodation, 90 bedrooms. Tariff, bed and breakfast, 12s. 6d.; luncheon, 2s. 6d.; dinner, 5s.

Green's Hotel, 22-24 Woodlands Terrace, C.3. Accommodation, 36 bedrooms. Tariff, bed and breakfast, 8s. 6d. to 10s. 6d.; full board, per week, 3 to 5 gns.; luncheon, 3s. 6d.; dinner, 5s.

Mores Hotel, 18 India Street, Charing Cross, C.2. Accommodation, 30, majority in double rooms. Tariff, bed and breakfast per person, 11s. 6d. (in double rooms, 10s. 6d.); full board (3 days), per day, 16s. 6d.; luncheon, 3s. 6d.; dinner, 5s.

Grand Hotel, Charing Cross, C.3. Accommodation, 20 single, 20 double. Tariff, bed and breakfast, single, 10s. 6d.; bed and breakfast, double, 8s. 6d.; luncheon, 2s. 6d.; dinner, 3s. 6d. to 6s.

Royal Hotel, 108 Sauchiehall Street, C.2. Accommodation, 6 single, 4 double. Tariff, bed and breakfast, 9s.; luncheon 2s. and 3s.; dinner, 3s. 6d.

Bath Hotel, 152 Bath Street, C.2. Tariff, Bed and breakfast, 8s. 6d.; full board, per day, 14s.; luncheon, 3s.; dinner, 4s.

Woodlands Gate Hotel, 11 Lynedoch Place, C.3. Accommodation, 26 bedrooms. Tariff, bed and breakfast, 6s. and 7s. 6d.; full board, per week, £2 10s. to £3 13s. 6d.; luncheon, 2s. 6d.; dinner, 3s. 6d.

#### PROFESSIONAL ADVERTISING

The attention of the Practice Standing Committee has been drawn to the fact that the publishers of certain journals are approaching architects for details of their professional activities, which the publishers propose to embody in the editorial columns of their journals. In the case of one particular firm of publishers, several members forwarded to the Institute the proposed article as drafted by the editor and sent to the architects for any additions or amendments the architects desire. In each case the wording of the articles is identical,

with the exception of the names and addresses of the firms of architects to whom they were sent.

The Committee desire to warn members generally against this undesirable form of publicity. The acceptance by members of invitations of this nature from firms of publishers is, in the opinion of the Committee, directly contrary to the Code of Professional Practice and tantamount to advertising.

#### LEGAL ADVICE FOR MEMBERS OF THE R.I.B.A.

The Practice Standing Committee, with the approval and authority of the Council, have made arrangements with an experienced solicitor whereby members of the R.I.B.A. can obtain legal advice for a very moderate fee on matters which arise in their practice from time to time.

The following arrangements have been made:—

A member desiring advice as to his legal position should in the first instance communicate his inquiry to the Hon. Secretary of the Practice Standing Committee, together with the relative documents. Should the matter raise a question of general interest to the profession the Committee would obtain the opinion and forward it to the member. In other cases the member would be put in communication with the solicitor, who would advise him direct.

In matters of general interest the solicitor's fee would be borne equally by the R.I.B.A. and the member concerned, and in other cases the fee would be borne wholly by the member. The fee would in either case be limited to a fixed amount. The advice would normally be confined to an opinion on the documents, but in cases where an interview between the member and the solicitor would be desirable, this would be arranged without extra fee.

Particulars as to the fee chargeable may be obtained on application to the Secretary, R.I.B.A.

#### THE RECEPTION OF NEW MEMBERS AND STUDENTS AT GENERAL MEETINGS

It has been decided by the Council to modify the procedure for the introduction and reception of new members and students at General Meetings. In future new members and students will be asked to notify the Secretary beforehand of the date of the General Meeting at which they desire to be introduced and a printed postcard will be sent to each newly elected member or student for this purpose. They will be asked to take their seats on arrival on a special bench or benches, reserved and marked for them. At the beginning of the meeting on the invitation being given to present themselves for formal admission each new member or student will be led up to the Chairman by one supporter, and the Chairman will formally admit them as members or students.

At the close of the meeting selected members of the Council will introduce themselves to the new members, and will make it their duty to introduce them to other members.

The introduction and reception of new members and students will take place at any of the Ordinary General Meetings of the Royal Institute with the exception of the meetings on the following dates:—

- 15 April 1935. (Presentation of the Royal Gold Medal.)
- 4 November 1935. (Inaugural General Meeting.)
- 27 January 1936. (Presentation of Medals and Prizes.)

## BUILDING SURVEYING EXAMINATIONS

The R.I.B.A. Statutory Examination qualifying for candidature as District Surveyor in London and the R.I.B.A. Examination qualifying for candidature as Building Surveyor under Local Authorities will be held at the R.I.B.A. on 1, 2 and 3 May 1935.

Applications for admission to either examination must be made not later than 10 April 1935, on the prescribed form to be obtained from the Secretary R.I.B.A., 66 Portland Place, London, W.1.

## THE USE OF THE TITLES "CHARTERED ARCHITECT" AND "REGISTERED ARCHITECT"

Now that the Registration Act is in force the Council have been asked to give advice with regard to the best way to use the title "Registered Architect" by members of the R.I.B.A. who have been placed on the Register, and who already have the right to use the designation "Chartered Architect."

The Council recommend that members of the R.I.B.A. who have been registered should use the designation "Chartered and Registered Architect."

## OVERSEAS APPOINTMENTS

When members are contemplating applying for appointments overseas they are recommended to communicate with the Secretary R.I.B.A., who will supply them with any available information respecting conditions of employment, cost of living, climatic conditions, etc.

## Competitions

The Council and Competitions Committee wish to remind members and members of Allied Societies that it is their duty to refuse to take part in competitions unless the conditions are in conformity with the R.I.B.A. Regulations for the Conduct of Architectural Competitions and have been approved by the Institute.

While, in the case of small limited private competitions, modifications of the R.I.B.A. Regulations may be approved, it is the duty of members who are asked to take part in a limited competition to notify the Secretary of the R.I.B.A. immediately, submitting particulars of the competition. This requirement now forms part of the Code of Professional Practice in which it is ruled that a formal invitation to two or more architects to prepare designs in competition for the same project is deemed a limited competition.

## COMPETITION FOR PROPOSED STRUCTURAL ALTERATIONS: BIRKDALE CONSERVATIVE CLUB

The Competitions Committee desire to call the attention of members to the fact that the conditions of the above competition are not in accordance with the Regulations of the R.I.B.A. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime members should not take part in the competition.

## COMPETITION FOR SHOP-FRONT DESIGNS: MESSRS. LENNARDS LTD.

The Competitions Committee desire to call the attention of members to the fact that the conditions of the above competition are not in accordance with the Regulations of the R.I.B.A. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime members should not take part in the competition.

## BIRMINGHAM: NEW MUNICIPAL OFFICES

The General Purposes Committee of the City of Birmingham invite architects of British nationality and practising in the British Isles to submit in competition designs for new Municipal Offices.

Assessor: Sir Reginald Blomfield, R.A., F.S.A.

Premiums: £1,000, £600, £400 and £250.

Last day for receiving designs: 28 June 1935.

Last day for questions: 30 March 1935.

Conditions of the competition may be obtained on application to Mr. Herbert H. Humphries, M.Inst.C.E., City Engineer and Surveyor, Birmingham. Deposit, £3 gs.

## BISHOPSGATE: NEW POLICE STATION AND BUILDINGS

The Corporation of the City of London invite architects whose principal offices are within the City of London or the area of the Metropolitan Police to submit in competition designs for a new Police Station, Dwellings and Hospital in Bishopsgate.

Assessor: Mr. H. Austen Hall [F.].

Premiums: £250, £100 and £50.

Last day for receiving designs: 31 May 1935.

Last day for questions: 25 March 1935.

Conditions of the competition may be obtained on application to the Town Clerk, Guildhall, E.C.2. Deposit £1 1s.

## CROYDON: DEVELOPMENT SCHEME

The Corporation of Croydon are holding a competition for the lay-out and development of a site in the centre of the town.

Assessor: Mr. Thomas Adams, F.S.I., M.T.P.I. [F.].

Premiums: £500, and £350 to be divided between not more than three placed next in order of merit.

Last day for receiving designs: 30 April 1935.

Last day for questions: 31 January 1935.

## GLOUCESTER: CEMETERY CHAPEL AND BUILDINGS

The Gloucester Corporation invite architects practising in the area of the Wessex Society of Architects to submit in competition designs for a cemetery chapel and auxiliary buildings at Coney Hill.

Assessor: Mr. Edward Maufe [F.].

Premiums: 125 and 100 guineas.

Last day for receiving designs: 27 March 1935.

## GRANITE MONUMENT COMPETITION

The Cornish Quarry Masters' Association in co-operation with the Architectural Association are holding a competition for the design of a monument in granite to commemorate the twenty-fifth year of the reign of His Majesty the King.

Assessors: The Hon. Humphrey Pakington [F.], President of the Architectural Association.

Mr. C. Lovett Gill [F.].

Mr. Charles Holden [F.].

Mr. Howard Robertson [F.].

Mr. M. L. Wetherall.

Prize: £50.

Last day for submitting designs: 8 April 1935.

Copies of the conditions may be obtained on application to the General Secretary, Architectural Association, 34-36 Bedford Square, London, W.C.1.

## COMPETITION RESULT

## CEMENT MARKETING CO.: WORKING MEN'S FLATS

1. Messrs. B. Lubetkin and Tecton, in collaboration with Mr. Ove Arup (engineer).
2. Messrs. A. P. Lloyd and E. W. Collins [A.A.], in collaboration with Mr. George Smith, B.Sc. (engineer).
3. Messrs. H. V. Ashley and Winton Newman [F.F.], in collaboration with Messrs. Whitaker, Hall and Owen (engineers).

## Members' Column

## PARTNERSHIPS WANTED

ASSOCIATE, with large experience of public and private works, is desirous of taking up a partnership in an established firm of architects, or of forming a firm on equal basis with another architect in a district where hard work would be likely to produce good results. Southern or South-eastern Counties preferred. Capital immediately available.—Box No. 1715, c/o Secretary R.I.B.A.

A.R.I.B.A., Chartered Surveyor, over 30 years' general experience, many as manager, open to partnership in established London practice where principal wishes to retire. Some capital available.—Apply Box No. 1825, c/o Secretary R.I.B.A.

## ROOM TO LET

MEMBER practising in Old Queen Street, Westminster, offers well lit room (13 feet by 9 feet); typing, etc., available. Rent, including electric light, £35 p.a.—Box No. 1525, c/o Secretary R.I.B.A.

## TRAVELLING COMPANION WANTED

STUDENT R.I.B.A. will be travelling through Italy during the month of May for the purpose of studying Italian Architecture, and would welcome a companion with similar intentions. All expenses to be shared.—Reply Box No. 5335, c/o Secretary R.I.B.A.

## HOUSE, TO LET

MR. CECIL H. PERKINS [A.] wishes to let his own residence on Pinner Hill, adjoining the golf course. Two reception rooms, 5 bedrooms, 2 bathrooms, maids' self-contained suite; central heating throughout; garage;  $\frac{3}{4}$ -acre garden. £120 p.a. on lease.—Write 31 Great James Street, Bedford Row, London, W.C.1, or ring Holborn 8220.

## CHANGE OF ADDRESS

MR. HAROLD G. ELLIS [A.] has removed to 96 Charlton Road, Kenton, Harrow, and would be glad to receive trade catalogues, etc., at that address.

MR. ALEC F. FRENCH, L.R.I.B.A., has changed his office address to 3 Unity Street, College Green, Bristol, 1. Telephone No.: Bristol 23518.

## NEW PARTNERSHIP

MESSRS. FOWELL and McCONNEL, F.F.R.I.B.A., wish to announce that they have taken into partnership Mr. J. L. Stephen Mansfield, B.Arch., A.R.I.B.A., as from 1 January 1935, and that in future the name of the firm will be Fowell, McConnell and Mansfield, 70 King Street, Sydney, N.S.W., Australia.

## ASSISTANCE OFFERED

ASSOCIATE with own office desires working arrangement with firm requiring capable assistance on competitions. Work to be done in own office on a salary basis. Extensive competition experience, awarded a number of premiums.—Reply Box No. 4335, c/o Secretary R.I.B.A.

## BOOKS OFFERED

41 Vols. of Compendium offered to any member free on his paying carriage, etc.—H. D. Pritchett, F.R.I.B.A., 12 High Row, Darlington.

## A.B.S. Insurance Department

## HOUSE PURCHASE SCHEME

(For property in Great Britain only)

## IMPORTANT CHANGES

The A.B.S. Insurance Department has for some years made a special feature of negotiating loans for house purchase for architects and their clients with a leading assurance office.

The scheme has now been revised, the amount of the loan being increased to 80 per cent. and the charges of the office's surveyor and solicitor being paid by the assurance office.

## Revised Terms

Amount of loan	.. 80 per cent. of the value of the property as certified by the surveyor employed by the office.
Rate of interest	.. 5 per cent. (gross).
Repayment	.. By means of an endowment assurance which discharges the loan at the end of 15 or 20 years or at the earlier death of the borrower.

N.B.—The office does not usually undertake loans under the terms of this prospectus on:—

- (a) Property of which the value exceeds £2,500,
- (b) Property of the bungalow type, or where the accommodation is of such a nature as to render the property not freely marketable,
- (c) Property not in the sole occupation of the borrower, but where such properties are acceptable special terms will be quoted on application.

## Special Concessions to Architects

In the case of houses in course of erection, it has been arranged that provided the plan and specification have been approved by the surveyor acting for the office, ONE-HALF of the amount of the loan agreed upon will be advanced on a certificate from the office's surveyor that the walls of the house are erected and the roof on and covered in to his satisfaction.

Please write for full particulars and a quotation from the Secretary, A.B.S. Insurance Department, 66 Portland Place, W.1. Telephone: Welbeck 5721.

It is desired to point out that the opinions of writers of articles and letters which appear in the R.I.B.A. JOURNAL must be taken as the individual opinions of their authors and not as representative expressions of the Institute.

Members sending remittances by postal order for subscriptions or Institute publications are warned of the necessity of complying with Post Office Regulations with regard to this method of payment. Postal orders should be made payable to the Secretary R.I.B.A., and crossed.

## R.I.B.A. JOURNAL

DATES OF PUBLICATION.—1935.—23 March; 6, 27 April; 11, 25 May; 8, 29 June; 13 July; 10 August; 7 September; 12 October.



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